Understanding Isolated and Non-isolated Victims of Peer Victimization in Middle School

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ABSTRACT

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The purpose of this study was to increase the understanding of the differences between isolated and non-isolated victims of peer victimization (PV) in middle school, in order to better understand the diverse mechanisms underlying the development of PV and to apply such knowledge to intervention programs for different types of victims. To meet this purpose, two research questions (RQ) were proposed. The first RQ examined how the relationship between self-reported PV and its risk factors/concurrent correlates (individual characteristics, such as peer-reported aggression, shyness, as well as self-reported internalizing problems and social skills, and patterns in peer relationships, such as peer-reported rejection by boys/girls and likelihood of having a mutually liked peer) are different depending on the level of peer-rated isolation in the 7th grade. The second RQ investigated factors associated with a decrease in peer victimization in the following year (8th grade), and examined whether such factors are different for isolated victims and non-isolated victims.

To address these research questions, secondary analyses were conducted on the data gathered by Brassard and colleagues in 3-year longitudinal survey conducted with the entire cohort of students in two middle schools in a lower income, racially heterogeneous urban school district. Participants were 640 students whose PV and isolation data in the 7th grade were available. PV was measured using the Social Experience Questionnaire (Crick & Glotpeter, 1996). Isolation was calculated based on peer nomination on an item, "play alone," from the Revised Class Play (Masten, Morison, & Pellegrini, 1985).

The results of the analyses indicated that non-isolated victims were not as different from isolated victims as expected. However, isolated victims and non-isolated victims were found to be two distinct groups of victims confronted with different challenges. Isolated victims, specifically isolated victimized boys, had poorer peer relationship patterns, including higher rejection by boys and girls, and lower likelihood of having a mutually-liked peer, while non-isolated victims suffered more from internalizing problems. Meanwhile, some similarities were found between these two types of victims; both of them are less shy and have fewer social skills compared to the non-victimized counterparts. PV was not significantly related to aggression for either isolated participants or non-isolated participants.

This study also identified possible individual characteristics that are related to a decrease in PV in a following year. Shyness was associated with escape from victimization for both non-isolated victims and isolated victims as was low internalizing problems for isolated victims.

These findings have implications for practices in school and clinical settings, including the importance of social skill training as an attempt to prevent adolescents from suffering from PV, and prioritization of clinical services for isolated victims to reduce their internalizing problems. This study also suggested some directions for future studies, including comparing isolated victims and non-isolated victims in more diverse aspects of peer relationships (e.g., popularity and friends' characteristics) , a more comprehensive analysis for the relationship between shyness and PV, and the identification of social skills that are beneficial for different types of victims.

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Chapter I

INTRODUCTION

For the past few decades, peer victimization (PV) has been studied extensively by many researchers in various countries, in response to its high prevalence and its significant negative impact on the victims. According to Card and Hodges (2008), approximately 30 % to 60 % of children report having been victimized during the current semester or school year, and 6 to 15% of children experience frequent (weekly or more) victimization from peers at any one time in school year. The negative outcomes of PV found in previous studies include internalizing problems (depression, anxiety, loneliness, withdrawal, and somatic symptoms) (e.g., Hodges & Perry, 1999; Reijntjes, Kamphuis, Prinzie, & Telch; 2010), externalizing problems (dysregulated aggression and conduct problems) (e.g., McLaughlin, Hatzenbuehler, & Hilt, 2009; Schwartz, McFadyen-Ketchum, Dodge, Pettit, & Bates, 1998), and low self-esteem and negative self concepts (e.g. Egan & Perry, 1998; Overbeek, Zeevalkink, Vermulst, & Scholte, 2010). The influence on academic aspects of the victims was also remarkable; PV increases school avoidance and absenteeism (e.g., Buhs, Ladd, & Herald, 2006; Juvonen, Nishina, & Graham, 2000), and low school engagement and low academic achievement (e.g. Iyer, Kochenderfer-Ladd, Eisenberg, & Thompson, 2010; Schwartz, Gorman, Nakamoto, & Toblin, 2005).

Based on these findings, it is necessary to create an effective anti-bullying program. Researchers and practitioners started to create some programs including anti-bullying components, such as Olweus Bullying Prevention Program (Olweus, 1993), Fourth R (Crooks, Wolfe, Hughes, Jaffe, & Chiodo, 2008), and Buddies Not Bullies (Buddies Not Bullies, 2011), and for some of them, they also began to test their effectiveness. A recent meta-analytic study showed that on average, anti-bullying programs lead to decreases in bullying by 20- 23 %, and in

victimization by 17-20% (Ttofi & Farrington, 2011). Although these numbers are statistically significant, judging from the seriousness of the negative outcomes the victims of PV suffer, these numbers are small, as it means that approximately 80% of the victims still suffer even after an intervention program is implemented. Additionally, some recent studies failed to replicate the effects of anti-bullying programs fully, specifically when they were applied in a different context, such as in another country, or in an urban school setting where demographics (e.g., diversity of ethnicity) of the students are different from those in the original intervention study. For example, the Olweus Bullying Prevention Program (Olweus, 1993), developed in Norway, has produced significant effects in some settings (Limber, 2011), if it is implemented appropriately. However, the program was found to be only partially effective in US urban/suburban middle schools, which are more ethnically diverse than schools in Norway (Bauer, Lozano, & Rivara, 2007; Bowllan, 2011). The challenges in creating an effective school-wide PV intervention program, specifically one for adolescents, were also discussed in another study (Fergusson, San Miguel, Kilburn, & Sanchez, 2007). Therefore, further studies are essential to develop effective anti-bullying programs that will work with adolescents in more diverse settings.

To approach this goal, one of the ways to improve the effectiveness of interventions for PV is to increase the field's understanding of the diverse mechanisms underlying the development of PV, and create specific subcomponents of intervention programs, each of which target a different type of PV and protect its victims. For example, effective intervention strategies to deal with victims who are victimized due to their aggressive provocation toward others would be different from those for the victims who become the targets of bullies because they are simply

weak and/or shy. It is likely that the victims' social/emotional/cognitive characteristics may differentiate what types of intervention would be most effective.

Research on Victim Subtypes

Recently, researchers have started to classify victims of bullying, and investigate differences in their social/emotional/cognitive characteristics and the consequences of bullying. In some studies, victims are categorized based on how they are victimized. For example, Bradshaw, Waasdorp, and O'Brennan (2013) conducted a latent cluster analysis and categorized middle school students into four groups: (a) verbal and physical victims, (b) verbal and relational victims, (c) high verbal, physical, and relational victims, and (d) low victimization. According to their findings, group c (high verbal, physical, & relational victims) suffered more internalizing problems and showed more aggression toward others than groups a (verbal & physical victims) and b (verbal & relational victims). The difference between group a (verbal & physical victims) and b (verbal & relational victims) was found in the level of aggression displayed toward others (a was more aggressive than b), but not in internalizing problems where the groups reported similar, moderate levels of symptoms.

Espelage, Low, and La Rue (2012) also conducted cluster analyses using four different types of victimization, verbal/physical victimization, relational victimization, homophobic name-calling victimization, and peer sexual harassment victimization. Based on the results, they classified children into four groups: (a) nonvictims, (b) relational victims (also high on verbal/physical victimization), (c) homophobic victims (also high on verbal/physical victimization), and (d) polyvictims (highest scores on all type of victimization). The results showed that all the victim groups tend to suffer from more depressive symptoms and use

alcohol/drugs more often than nonvictims, and relational victims and polyvictims were more depressed than homophobic victims.

Simlarly, Wang, Iannotti, Luk, and Nansel (2010) conducted a latent-cluster analysis and found three classes of children: (a) all-types victims, (b) verbal/relational victims, and (c) non-victims. They found that all-types victims suffered more than verbal/relational victims, who suffered more than non-victims, in terms of depressive tendencies, nervousness, sleeping problems, and medically-attended injuries. The results differed slightly by gender.

The results of these studies consistently showed that those who suffer from multiple types of victimization behaviors suffer more than those who suffer from fewer types of victimization behavior. However, because most of the victims suffer from every type of victimization, compared to non-victimized group, these results do not necessarily clarify the characteristics of "pure" physical/verbal victims and those of "pure" relational/verbal victims. Therefore, it might also be difficult to discover different types of mechanisms of PV, based on information about how victims are victimized.

Other researchers focused on the role of children themselves in context of victimization. They differentiated bully/victims, those who can be regarded as both bullies and victims, from those who are regarded as victims, but "not" as bullies, and made comparisons between them. Previous studies showed that bully/victims have more externalizing problems than victims; bully-victims are more aggressive (Menesini, Modena, & Tani, 2009; Veenstra, Lindenberg, Oldehinkel. Winter. & Verhulst, et al., 2005), both proactively and reactively (Salmivalli & Nieminen, 2002), have "hotter" tempers (Georgiou & Starvrinides, 2008), are more likely to be delinquent/have conduct problems (Andereou, 2000; Kumpulainen, Rasanen, & Puura, 2001; Menesini, et al,, 2009), and use substances more often (Kaltiala-Heino, Rimpela, Rantanen, &

Rimpela, 2000) than victims, while in many cases, the difference did not reach statistical significance, due to the small number of bully-victims. Bully-victims also show significantly lower academic/scholastic performance (Andereou, 2000; Veenstra et al., 2005) and lower athletic competence (Andereou, 2000) than victims. In terms of internalizing problems, such as depression and anxiety, the findings were inconsistent; while in some studies, bully-victims suffer more than victims (Kaltiala-Heino, et al., 2000; O'Brennan, Catherine, Bradshaw, & Sawyer, 2009; Rigby, 1998), in other studies, victims suffer more than bully-victims (Craig, 1998; Juvonen, Graham, & Schuster, 2003; Kumpulainen, et al., 2001; Mensini et al., 2009). In either case, most of the time the differences were not statistically significant.

Similarly, examination of differences in self-esteem also led to inconsistent results; while Andereau (2000) showed that victims have significantly higher global self-worth and self-esteem compared to bully-victims, Pollastri, Cardemil, & O'Donnell (2010) found that bully-victims have non-significantly but higher self-esteem than victims. Socially, studies consistently showed that bully-victims are avoided and disliked compared to victims, while victims are also significantly more disliked than non-victimized peers (Andereau, 2000; Georgiou & Stavrinides, 2008; Juvonen, et al., 2003; Veenstra et al. 2005). However, it should be noted that victims and bully-victims are isolated to a similar degree, on average (Veenstra et al., 2005). Some recent studies focused on differences in beliefs and attitudes between bully-victims and victims, leading to findings that bully-victims are more likely to make hostile external attributions when they are attacked (Georgiou & Stavrinides, 2008), have a positive view on retaliation toward those who attacked them (Bradshaw, O'Brennan, & Sawyer, 2008), and support the use of instrumental, reactive, and physical aggression to resolve conflicts (Betetncourt & Farrell, 2013).

These findings reveal the distinguishing characteristics of bully-victims and victims. Bully-victims tend to be aggressive children with hostile external attributions and habits of retaliation, who are particularly disliked and avoided by peers. Victims tend to be relatively non-aggressive children who are victimized and isolated for unclear reasons. Both bully-victims and victims seem to suffer from internalizing problems and are isolated compared to uninvolved peers. Taken together, key difference between these two types of victims seems to be degree of aggressive behavior and attitude toward others, which leads to different reactions when they are victimized. Therefore, taking account of the fact that PV is not a one-time incident, but consists of a sequence of interactions between aggressors and victims, specifically in the case of severe victims, bully-victims (aggressive victims) and victims (non-aggressive victims) can be considered to have somewhat different experiences, even though both of them are called PV.

Recently, Pronk and Zimmer-Gembeck (2010) conducted a qualitative study about Australian adolescents' experience of relational victimization, from both aggressors' and victims' perspectives. They particularly focused on motivation and goals of relational aggression, getting detailed descriptions about forms of relational aggression/victimization from those involved. They found that relational aggression was actually caused by different factors, such as aggressor's motivation to maintain social dominance or downgrade someone's social status, aggressor's mood, and friendship insecurity. Interestingly, in terms of victims' characteristics, both negative aspects (e.g., lack of social appeal in victims, and passivity of victims) and positive aspects (e.g., good looking, good academic achievement) were reported to trigger relational victimization. In the discussion, the authors highlighted the two distinct type of relational victimization: exclusion from a larger group, which was mainly found among boys, and social and emotional manipulation within a group of close friends, which was more frequently found

among girls. Although the authors only connected the type of relational victimization with gender, these results clearly indicate the diversity in mechanisms of PV: victimization within group, and victimization incorporating isolation/exclusion from a group.

In response to the finding of Pronk et al. (2010)'s study, Zimmer-Gembeck, Pronk, Goodwin, Mastro, and Crick (2012) suggested another dimension of categorizing PV: connected victimization and isolated victimization. Although they did not explicitly define connected victimization and isolated victimization, based on the description and items used to measure them, the difference can be considered as follows. Connected victimization is a type of victimizing behaviors that could be only executed within a pair/group of peers who have had a close relationship. Examples of the items they used for connected victimization were, "If I am not around, my friends seem to talk about me or plan things without me," and "Some of my friends are nice to me one day and mean to me the next." Isolated victimization is a type of victimization behavior that implies exclusion from a large group, or at least, does not assume a previous close relationship between aggressors and victims. The items the authors used to measure isolated victimization included, "Others in my grade say mean things about me behind my back," and "If I try to join in with others, I am made to feel unwelcome or am excluded." They examined the differences between these two types of victimization, with a particular focus on relational victimization. Since they adopted a variable-oriented approach, not a person-oriented approach, their findings are mainly about the relationship between connected and isolated victimization and the social/emotional characteristics of students. Summarizing their findings, connected victimization was more strongly positively related to relational aggression than isolated victimization, though this relationship was not found for boys when victimization was measured using self-report. For girls, peer-reported connected victimization was also

positively associated with social prominence, which was determined in this study as the average of the nominations for popularity (being well-known, influential, a leader, and being admired). Both types of victimization were related to peer rejection and unpopularity. It should be remembered that the authors did not distinguish connected (non-isolated) victims from isolated victims in this study. Nevertheless, from the viewpoint of peers, these victims are probably distinguishable because of the frequency of interactions with others. For this reason, it seems plausible to assume two different types of victims, non-isolated victims and isolated victims, who have different social experiences. Therefore, to increase understanding of the diverse mechanisms of PV, it is worthwhile to study the difference between isolated and non-isolated victims, even though no other previous study that examined the differences was found.

Purpose of the Study

The purpose of this study is to extend the understanding of the differences between non-isolated victims and isolated victims, with particular focus on individual/social characteristics that can be addressed through intervention. There are several reasons for focusing on this particular distinction. First, from a perspective of teachers and school psychologists, it is relatively easy to distinguish isolated adolescents from non-isolated adolescents just based on classroom observation. Second, previous studies indicate a possibility that non-isolated victims and isolated victims have different patterns of peer relationships, leading to an inference that they might be different in other characteristics. Along with this line of thought, the first research question of this study is to investigate the differences in individual characteristics and peer relationship patterns between non-isolated victims and isolated victims. The second research question of this study is to investigate factors that are associated with a decrease in peer

victimization in the following year, and examine whether such factors are different depending on the victims' level of isolation.

Possible Characteristics of Non-isolated Victims and Isolated Victims

What are the unique social/emotional/behavioral characteristics of non-isolated and isolated victims? To consider the characteristics of non-isolated victims, it is important to consider what social/emotional/behavioral characteristics trigger victimization within peer group. Zimber-Gembeck et al. (2012) found that for females, connected victimization is more strongly related to relational aggression than isolated victimization. This leads to an inference that non-isolated victims are vulnerable to PV due to their frequent engagement in aggressive behavior toward other students, which triggers aggressive retaliation from other children, or mutual aggression. In fact, Bagwell and Schmidt (2011) found that that relational victimization and its stability were positively related to frequency of conflicts with their best friend, indicating that some relational victimization occurred in a context of frequent conflicts with close friends. Aggressive/provocative behavior that causes frequent conflicts tends to be more frequently observed for those who have low social skills, such as low self-control skills (Ronen & Rosenbaum, 2010) and/or low anger management skills (Down, Willner, Watts, Griffiths, 2011). Judging from the fact that non-aggressive assertive behaviors are often taught as an alternate of aggressive behaviors in social skill groups (Smead, 1990), those who are often involved with peer conflicts may also lack skills to assert themselves in appropriate ways. Taken together, it can be expected that non-isolated victims have lower overall social skills, including self-control skills, anger management skills, and non-aggressive assertion skills, and show a higher level of aggression compared to non-isolated non-victims.

When considering the unique characteristics of isolated victims, it seems to be important to consider not only how they are different from non-isolated victims, but also how they are different from isolated non-victims, specifically in order to distinguish the effect of the combination of isolation and victimization from that of pure isolation. To consider this issue, it is necessary to think about the reasons that a child might be isolated from other peers and spend time alone. Children who spend time alone can be considered to be divided into a two large groups: those who chose to be alone and those who are forced to be alone. Based on the evidence that more than half of adolescents recognize the benefit of being alone (Galanaki, 2004), it is reasonable to assume that there exist some adolescents who chose to be alone. Isolated non-victims are perceived by others as being alone in spite of the fact that they do not report that others attack them. In contrast, in the case of isolated victims, it can be assumed that they are more likely to be forced to be alone because of social exclusion, a type of victimization, or as an attempt to escape from aggressors. Therefore, the difference between isolated non-victims and isolated victims might be parallel to the difference between those who chose to be alone and those who are forced to be alone.

What types of peers do adolescents avoid interacting with and force to be alone? First, adolescents would not interact with those whom they dislike. In fact, Hawley, Little, & Card (2007) found in their sample of adolescents a .81 correlation between the ratings of "Who do you like the least?" and "Who do you not like to hang out with." The high correlation between the ratings of these two questions indicates that adolescents would avoid interacting with those who they do not like. The high level of "being disliked" would not be applicable to those who "choose" to be alone, because they are not necessarily avoided by other children, by definition. Meanwhile, adolescents who are forced to be alone would also be less likely to have a peer

whom they are mutually-liked because mutually-liking was shown to be strongly related to mutual friendship nomination (Hundley & Cohen, 1999) and those who have a friend in his/her classroom would hang out/play with him/her unless they intentionally choose to be alone. This also leads to an inference that those who choose to be alone are as likely to have a mutually-liked peer as those who are not perceived as isolated, because liking to have time to be alone wouldn't necessarily mean that they want to have no friends.

In terms of the individual characteristics of those who are forced to be isolated from his/her peers, there seems to be high variability. According to Rubin, Bukowski, & Parker (2006), among the rejected children, 40-50% of them are regarded as aggressive and 10-20% are timid and withdrawn, while they did not clearly describe the behavioral characteristics of the remaining rejected children. As shown above, since the rejected (disliked) children are also likely to be excluded, it can be hypothesized that excluded children also displays a similar level of heterogeneity. Therefore, it would be difficult to identify one specific unique individual trait among those who are forced to be alone. In contrast, those who choose to be alone might be perceived as shy from other peers, because it seems to be highly possible that when they consider the reason that they choose to be alone without being attacked, they may attribute their behavior to their innate shyness. Finally, it is considered that regardless of their characteristics, those who are forced to be alone might exhibit problematic ways of social interaction, which can trigger social exclusion from many peers. In the case of those who choose to be alone, however, they do not necessarily interact with others in problematic ways when they "choose" to interact with others. Therefore, it can be hypothesized that those who are forced to be alone might have lower social skills than those who choose to be alone.

The reasoning regarding the difference between those who choose to be alone and those who are forced to be alone led to the following hypothesis about the difference between isolated non-victims and isolated victims. Isolated victims would be more rejected by peers, be less likely to have a mutually-liked peer, and have lower social skills compared to isolated non-victims. In contrast, isolated non-victims would be more shy compared to isolated victims.

Finally, it might also be important to address a possible similarity between non-isolated victims and isolated victims. As previous studies have consistently showed that PV is related to increase in internalizing problems, such as anxiety, depression, and low self-esteem, both isolated victims and non-isolated victims would suffer more from internalizing problems compared to non-victimized counterparts.

Who escapes from victimization?

Since the isolated victims and non-isolated victims can be regarded as distinct groups of victims, it can be hypothesized that the factors that help them escape from victimization would also be different. It is hypothesized that victims are more likely to experience a decrease in victimization if they have fewer of the individual risk-factors for victimization. For non-isolated victims, if they are less aggressive and have higher social skills, they would be more likely to be escape from victimization. For isolated victims, if they have higher social skills, they would be more likely to escape from victimization. In terms of peer relationship patterns, friendship, positive peer liked/disliked nominations, and peer hierarchies have been found to be a protective factor of in that they make future victimization less likely (Hodges, Boivin, Vitaro, & Bukowski, 1999; Wolke, Woods, & Samara, 2010). Therefore, it is hypothesized that those who have more social resources (i.e., having at least one friend, lower same-sex rejection) would experience a

decrease in PV, compared to those who have less social resources, regardless of type of victim (e.g., isolated vs. non-isolated).

Possible gender differences

Previous studies have shown gender differences in some aspects of PV. For example, girls more often reported issues that occurred within a relationship between bulli(es) and s victim (e.g., arguments, competition) as the direct reason/trigger for victimization than boys (Smith, Talamelli, Cowie, Naylor, & Chauhan, 2004). The relationship between the type of victimization and type of internalizing problems the victims experience was also shown to be different between girls and boys (Ranta, Kaltiala-Heino, Pelkonen, & Marttunen, 2009). For example, Ranta et. al, found that while boys with both high depression and high social phobia suffered from overt victimization more than boys with only high depression or high social phobia, girls with both high depression and social phobia were not significantly different in the level of overt victimization they suffered than girls with only high depression or high social phobia. Furthermore, Zimber-Gembeck et al. (2012) also found gender differences in what social characteristics were related to connected/isolated victimization; for instance, a significant positive relationship between connected victimization and social prominence was found for girls, but not for boys. Taking account of these findings, it seems to be reasonable to consider that some gender differences would be found in the social emotional characteristics of non-isolated victims and isolated victims. However, it is also true that for some specific aspects of PV, gender differences were found in some studies but not others. For instance, in terms of the frequency of relational victimization, some studies showed girls suffer from relational victimization significantly more often than boys (e.g. Crick & Bigbee, 1998; Wang, Iannotti, &Nansel, 2009), while other studies indicated no significant gender difference in frequency of relational

victimization (e.g., Crick & Nelson, 2002; Storch, Crisp, Roberti, Bagner, & Masia-Warner, 2005). This indicates that it is difficult to predict gender differences in the characteristics of specific types of victims of PV, especially if it has not been investigated previously. Therefore, in this study, gender differences in social emotional characteristics of non-isolated victims and isolated victims are explored, but without establishing specific hypotheses.

Research Questions and Hypotheses

In this section, first, overall research questions are proposed. Then, for each research question, concrete theoretical and operational hypotheses are presented. To help the readers understand the hypotheses easily, the summary of the hypotheses were also illustrated in Table 1 for those for the Research Question 1, and in Table 2 for those for the Research Question 2. For each research question, the hypothesized relationship among variables is also depicted in Figures 1 and 2.

Research Questions

Research Question1: Are the relationship between self-reported PV and its risk factors/concurrent correlates (individual characteristics and patterns in peer relationships) different depending on the level of peer-rated isolation? The individual characteristics examined in this study are peer-rated aggression and shyness and self-reported internalizing problems and social skills. The peer relationship patterns studied are rejection from boys and girls (separately), and likelihood of having a mutually-liked peer. The interaction effects of gender are also examined.

Research Question 2: What are the individual characteristics/peer factors that are associated with a decrease in peer victimization in the following year? Are such factors different for isolated victims and non-isolated victims?

Theoretical and Operational Hypotheses related to Research Question 1:

T1. Among the risk factors/concurrent correlates of PV listed in RQ1, the interaction effect of isolation and PV would be found on aggression, shyness, rejection from boys/girls, and likelihood of having a mutually-liked peer. The interaction effect would not be found for internalizing problems and social skills; instead, the main effect of PV would be found for these variables with victims higher in internalizing problems and lower in social skills than non-victims.

O1. The interaction effect of the score of the peer- rated isolation (i.e., the score of "play alone" from Revised Class Play (RCP)) and the score of the self-reported PV (i.e., sum of the scores of overt victimization and relational victimization subscales on the Social Experience Questionnaire- Self Report (SEQ-S)) would be found on the scores of the following scales: (1) Peer-rated aggression (i.e., sum of the scores of the 6 items from RCP), (2) Peer-rated shyness (i.e., the score of "very shy" from RCP), (3) Peer-rated rejection from boys/girls (i.e., the proportion of the boys/girls who rated the participants on an item, "like least"), and (4) Having a mutually-liked peer (i.e., mutual-nomination for the item, "like most" on the peer-rating). In contrast, the interaction effect would not be found for the scores of the following scales: (1) Self-reported internalizing problems (i.e., weighted sum of the scores of the anxiety subscale of the Behavioral Assessment System for Children (BASC, SRP-A), Reynolds Adolescent Depression scale (RADS), and the flipped score of an abbreviated version of the Rosenberg Self-Esteem scale), and (2) Self-reported social skill (i.e., weighted sum of the scores of a modified version of the Anger Control scale, a modified version of the Social Assertiveness scale, and the Self-Control scale). Instead, the main effect of PV would be found for the scores of these scales. The score of self-reported PV would be positively associated with the score of self-reported

Internalizing problems and negatively associated with the score of Social Skills, controlling for the score of peer-rated isolation.

T2. Compared to non-isolated non-victims, non-isolated victims would be more aggressive, have less social skills, and have more internalizing problems.

O2. Compared to those whose score was low on self-reported PV and low on the peer-rated isolation, those whose score was high on the self-reported PV and low on the peer-rated isolation would obtain a higher score on the peer-rated aggression scale, a lower score on the self-reported social skills scale, and a higher score on the self-reported internalizing problems scale.

T3. Compared to isolated non-victims, isolated victims would have less social skills, have more internalizing problems, be more rejected by both boys and girls, and be less likely to have a mutually-liked friend. On the contrary, isolated non-victims would be more shy compared to isolated victims.

O3. Compared to those whose score was low on self-reported PV and high on the peer-rated isolation, those whose score was high on the self-reported PV and high on the peer-rated isolation would obtain a lower score on the self-reported social skills scale, a higher score on the self-reported internalizing problems scale, and a higher score on the peer-rated rejection from boys/girls scale. They are also more likely to score 0 on the scale, having a mutually-liked peer. On the contrary, those whose score was low on the self-reported PV and high on the peer-rated isolation would have a higher score on the peer-rated shyness scale, compared to those whose score was high on self-reported PV and high on the peer-rated isolation.

Hypotheses related to Research Question 2:

T1. With regard to individual characteristics, those who possess fewer individual risk factors would experience a decrease in PV in the following year. However, individual risk factors would be different depending on type of victim. For isolated victims, higher social skills would be related to decrease in PV, while for non-isolated victims, lower aggression and higher social skills would be associated with decrease in PV.

O1. With regard to individual characteristics, those who obtained scores associated with low individual risk factors would show the larger decrease in raw score of the self-reported PV between 7th and 8th grade. However, the scales that contribute to the larger decrease would be different depending on the scores of the peer-reported isolation. For those who scored high on the peer-reported isolation, a higher score on the self-reported social skills scale would be related to a larger decrease in the score of the self-reported PV from 7th grade to 8th grade. For those who scored low on the peer-reported isolation, a lower score on the peer-rated aggression scale and a higher score on the self-reported social skills scale would be associated with a larger decrease in the score of the self-reported PV from 7th to 8th grade.

T2. In terms of peer relationship patterns, those who have more social resources (i.e., having at least one mutually-liked friend, lower rejection from boys and girls) would experience a decrease in PV, compared to those who have less social resources, regardless of type of victims.

O2. In terms of peer relationship patterns, those whose scores indicate more social resources (i.e., score 1 on Having mutually-liked peer scale, a lower score on peer-rated rejection from boys/girls) would obtain a larger decrease in the scores of self-reported PV from 7th to 8th grade, compared to those whose scores indicate less social resources, regardless of the scores on peer-rated isolation.

Chapter II

METHOD

Overview

This study is secondary analyses of data gathered by Brassard and colleagues in 3-year longitudinal survey conducted from 1999 to 2001. The survey was conducted with students in two middle schools in lower income, racially heterogeneous urban school district in Massachusetts. For this study, the data from second (wave two) and third year (wave three) of the survey is used, due to the variables included in the survey. The details of the participants and procedures of gathering the data are described in following section.

Participants

For the second year of the survey, 739 students in the seventh grade were asked to participate in the survey. Of those, five students refused to participate, twelve were absent, and fourteen attended school on only one of the two days when the data were collected. The remaining 708 students attended school on both of the days and participated in the survey. Of those 708 students, eleven did not complete a questionnaire about PV. Isolation data could not be obtained on 57 of them, whose peer-rated data were not gathered, because they had either moved from regular education in 6^{th} grade to special education in 7^{th} grade or had been retained in 7^{th} grade. Only students who remained in regular education classes for their appropriate grade participated in the peer nomination procedure. Since PV and isolation are key variables for this study, those whose with missing data on these variables were dropped from this study. Therefore, the analyses are conducted on the data from the remaining 640 students.

Of these 640 students, in 7^{th} grade, 50.5% of them were male and 49.5% were female. The participants are racially diverse; 39.1% of them were Latino/Hispanic, 29.5% were White,

20.1% were Black/African American, 6.3% were biracial, 2.4 % were Asian, 2.7 % reported none of them. The majority of the students were from low-income families; 89.1% of them were eligible for free lunch.

For the latter part of the dissertation, the analyses are conducted only with participants whose PV data are available in both the second and third year of the longitudinal study. Therefore, the data were analyzed for 560 participants (284 boys and 276 girls). There were no significant difference in the level of PV and isolation in the 7th grade between those who were followed up in the 8th grade and those who were not.

Measures

Peer victimization. The status of victims of PV in the 7th and 8th grade was determined using the combined score of the overt and the relational victimization subscales of the *Social Experience Questionnaire – Self Report* (Crick & Grotpeter, 1996). The Overt Victimization subscale (e.g., "How often do you get hit by another kid at school?") consists of seven items, and the Relational Victimization subscale (e.g., "How often do other kids leave you out on purpose when it is time to play or do an activity?") consists of ten items. The items in both subscales were rated on a 5-point Likert scale from (1="*never*", 2= "*almost never*", 3="*sometimes*", 4="*almost all the time*", and 5="*all the time*"). This scale is regarded as a valid measure of PV (Storch, Nock, Masia-Warner, & Barlas, 2003). Since a factor analysis using this dataset indicated that the PV scale consists of one factor, in this study, only the total score of this scale was used to determine the victims. The Cronbach's alpha of the scale were .90 - 91 for the 7th and 8th graders.

Isolation. Revised Class Play (RCP) (Masten, Morison, & Pellegrini, 1985) was used to measure the level of isolation and distinguish isolated victims from non-isolated victims, RCP is

a widely used scale which adopted peer nomination to measure characteristics of children. The original version of the revised class play consisted of 30 roles, 15 positive attributes and 15 negative attributes. To accommodate the interests of the researchers who collected the original data, the 30-item scale was further revised. Seven additional items developed by Luthar and colleagues (see Luthar & McMahon, 1996) were added in a pilot study, including 6 Relationally Aggressive items (i.e., excludes people from being in their group of friends), and an item "Is a good athlete." An additional item was also added to the scale: "Is overly flirtatious/comes on strong with the opposite sex." Furthermore, three items from the original Revised Class Play were dropped including, "acts like a little kid", "usually happy", and "has good ideas for things to do." This version of the Class Play with 35 items was used in the first year of the data collection of the original study. However, given its long length and the time constraints of data collection, the class play was reduced down to 15 items for the remaining two years of data collection (7^{th} and 8^{th}). The remaining items were chosen based on students' feedback of the items during the pilot study and the first year of data collection, and an exploratory factor analysis of the pilot data.

During the data collection, the students were provided with a class list and asked to identify up to three individuals who they felt best suited the role that was listed, for each of the 15 roles (items). Students were informed that a classmate could be selected for more than one role; however, students were not allowed to pick themselves for any role listed. Students who were not originally on a class list, but were new members on a class, were manually added on the day of data collection, to ensure that they could be selected by their peers. If self-selection was found to occur, this vote was counted as missing.

The primary way of calculating the individual item score is the following. First, the number of the students who actually participated in the peer nomination is calculated. Looking at the raw data, it was found that some students did not nominate any students in any of the 15 items. These students were not regarded as a participant in peer nomination. In contrast, if the student nominated at least one student on one item, this student was still regarded as a nominator because it is possible that he/she could not find any students in his/her class who suited for certain roles. In fact, many of the students did not nominate any person on some of the items (see Appendix: Table A1). Next, the number of nominations each student received was calculated. For each particular item, if a student nominated 4 or more students on a particular item, the nominations from this student on that item were dropped from the calculation because it is possible that she/he engaged in a random nomination or adopted more lenient criteria to find peers for that role, compared to those who followed the rule of nomination (nominating up to 3 individuals). After calculating the number of peers who nominated in the participation and the number of nominations each student was received, the score for each item was calculated. The score of each item was defined as the proportion of the number of nominations each student received to the number of peers who participated in the nomination. This calculation can be justified for the reason that it incorporates the difference in total number of peers nominated for each class on each item, which reflects the difference in peer compositions for each class. As a result, it would reduce the possibility of overestimating characteristics measured on each item, which would be caused by simple within-class standardization if the total number of nominations on a particular item in that class is small.

For isolation of participants, the score of an item, "play alone" is used. There is one more item that might be related to the concept of isolation, "left out," but since leaving out is a method

of victimization, to maintain conceptual independence as much as possible, this item was not used for calculating isolation. While the variable is measured using one item, the score can be regarded as reliable as the score is actually derived from independent rating of approximately 15-25 of peers in their class. These classmates spend 4 or more class periods each day together so they get to know each other well. The rating on a particular student by a peer is not affected by the rating of the other students, judging from the fact that most of the nominating students (87%) did not nominate the maximum number of the students for this item. Additionally, the test-retest reliability of isolation between 7th and 8th grade was .681, which also added evidence of the validity of the score as individuals were rated each year by a different mix of classmates.

Aggression. The level of aggression was measured using the individual item scores on RCP (see the isolation section for how the score of individual items was calculated). The average score of the 6 items whose contents were regarded as aggression, "excludes people", "spread rumor," "lose temper easily," "tease others," "too bossy," and "many fights," were used to calculate an aggression score for each individual. The Cronbach's alpha calculated with these 6 items was .90. These six items were found as one factor from the factor analyses on all the 15 items of RCP conduced by the researchers who collected the original data (Brassard, personal communication, 2012).

Shyness. Shyness was measured also using the score of an individual item on RCP, "very shy" (see the isolation section for how the score of the individual item was calculated). As in isolation, since the score was derived from the independent rating of 15-25 peers in the classroom, and the test-retest reliability of the score between 7th and 8th grade was .608, the score can be considered a valid measure of peer perceived shyness..

Internalizing Problems. The variable, internalizing problems, was developed based on weighted sum of the standardized score of three variables: Anxiety, Depression, and Low Self-esteem. The descriptive data of the raw scores of these variables are presented in the Appendix: Table A2-1. These three variables were found to form one factor in a principal component analysis (see Appendix: Table A2-2). The factor loads derived from the analysis (.457 for anxiety, .999 for depression, and .574 for low self-esteem) were used to calculate the weights. The following are descriptions of the three scales that were combined to create the Internalizing Problems variable.

To measure anxiety, the anxiety subscale of the Behavioral Assessment System for Children (BASC, SRP-A) (Reynolds, & Kamphaus, 1992) was used. This self-reported scale consists of 14 items, such as “I worry about little things” and "I worry a lot of the time," rated on a dichotomous scale (true=1/false=0). The score was flipped so that the higher score meant higher anxiety. The mean of the 14 items was calculated. The BASC SRP-A was standardized on a sample of over 4,400 adolescents from four areas of the United States. Reported alphas for the Anxiety subscale ranged from .84 to .88 in the standardization sample and clinical norm samples. Test-retest reliability is .80 for several weeks in clinically diagnosed children and randomly selected from separate groups. Construct validity with other self-report instruments of anxiety in different samples ranges from .65 to .76 with the Minnesota Multiphasic Personality Inventory – Anxiety factor (MMPI; Hathaway & McKinley, 1942, 1943 [renewed 1970]), and the Youth Self Report (YSR; Achenbach, 1985). The Cronbach's alpha of this scale in this study for 7th grader was .77.

Depression was measured by Reynolds Adolescent Depression Scale (RADS) (Reynolds, 1987). The scale is consisted of 30 items, including the items such as “I feel lonely”,

"I feel sad," with higher scores indicating higher levels of depressive symptomatology. For clarity and ease of fit with other items in the current study protocol, the Likert anchors were changed to the one used in the RCDS (Reynolds, 1989) ranging from 1 (*almost never*) to 4 (*all the time*). The RCDS was administered in year 1 in this study due to difference in norm availability. The RADS was standardized on a sample of over 10,000 adolescents in both urban and suburban areas of the Midwestern United States, generating a high internal consistency (.90). Construct validity with other self-report instruments of depression in different samples ranges from .72 to .76 (Reynolds, 1987). Reliability coefficients obtained in the present study were .90, for the 7th graders.

The score of low self-esteem was the flipped score of the Self-esteem scale used in this study, which is an abbreviated version of Rosenberg Self-Esteem Scale (Rosenberg, 1965). For this scale, higher scores indicate a stronger degree of self-esteem, on such items as “I feel I have a number of good qualities” rated on a 1 to 5 Likert scale, ranging from "*never true*" to "*always true*". For clarity, and ease of fit for other items in the survey, the anchors for the Likert scale were altered slightly to: really not true for me, somewhat not true, not sure, somewhat true for me, really true for me. The short form version of this scale was modified from the original 6 items by Gilbert J. Botvin’s research group to be more understandable for junior high school students (Epstein, Botvin, Diaz, & Schinke, 1995) (“I feel I’m a person of worth” was changed to “I feel I am a good person”). In this study, the Cronbach's alphas for 7th graders was .86.

Social Skills. The social skills variable was created using the weighted sum of the standardized score of three variables: anger control, social assertiveness, and self-control. A principal component analysis using these three variables led to a one factor solution (see also Table A3-2). The descriptive data of the raw scores of these three variables are presented in the

Appendix: Table A3-1. The weights were based on the factor loads derived from the analysis (.716 for anger control, .679 for social assertiveness, and .828 for self-control). The following are descriptions of the three scales that were combined to create the Social Skills variable.

The scale used to measure *anger control* was an 8-item modified version of the Anger Control scale, which was originally created by Griffin, Scheier, Botvin, Diaz, and Miller (1999). Brassard and colleagues, who collected the original data of this study, modified the scale in order to make the terminology of the items better understood by the 6^{th} grade participants after a pilot study. This scale assesses participant's feelings and expression of anger. Items were rated on a five-point Likert scale with responses ranging from 1 (*really not true for me*) to 5 (*really true for me*) on items such as, “Sometimes I feel like I am ready to explode” and "Sometimes I get mad for no good reason". The low score of this scale indicates that the participant manages his/her anger well. Therefore, the scores are flipped to make them easier to be interpreted. The internal consistency (Cronbach's alpha) was .77 for the seventh graders.

The original scale used to measure *Social Assertiveness* was developed by Gambrill and Richey (1975) to assess the frequency of positive social assertions and general assertion behaviors tied to defense of rights. Wills, Baker, and Botvin (1989) modified the measure to be appropriate for use with adolescents. Brassard and colleagues modified this measure of interpersonal assertiveness after a pilot study with an entire cohort of sixth graders found that younger adolescents had trouble understanding some of the words and they reduced the number of items. As a result, 8 items were used for this study to assess social assertiveness of the students. Participants were asked to indicate “How confident are you that you could do well in the following situations?” on a Likert scale of 1 to 5 from being “*not at all confident*” to “*very confident*” Each item includes different situations. Examples of the situations were, "asking

questions to avoid misunderstanding," and "saying no when someone asks you to do something you do not want to do." The Cronbach's alpha of this scale in this study was .75 for the seventh graders.

Self-control was measured using a 7-item scale developed by Scheier and Botvin (1995), which was derived from the 33-item Kendall and Wilcox Self-Control Rating Scale (Kendall & Wilcox, 1979). This scale assesses the ability to manage impulsive or disruptive behavior, particularly in school settings. Responses to items such as “In situations where I have to wait on line, I can do this patiently” were rated on a five-point Likert scale, ranging from *strongly disagree* to *strongly agree*. The reduced 7-item scale was found to have a coefficient alpha of .76 in a original sample of eighth and twelfth graders (Schier & Botvin). The Cronbach's alpha of the scale in this study was .66 for the seventh graders.

Rejection. The level of being liked and disliked by boys and girls were measured using peer nomination. The participants were provided with a class list and asked to identify up to three individuals whom they "like most" and who they "like least." The score was calculated based on the proportion of the number of the boys (or girls') nominations each student received to the number of the boys (or girls) who participated in the nomination, for the item "like (most) least." The detailed procedure of the score calculation is the same to that of the items in the RCP (see the subsection, *Isolation*).

Having a mutually liked friend: Participants scored one if they mutually nominated at least one peer in his/her class for the item, "like most", and zero if they did not. Mutual-nomination for the item, "like most," can be justified as an indicator of friendship, because mutual-liking was shown to be strongly related to mutual friendship nomination (Hundley & Cohen, 1999).

Software used for Analyses

To address the research questions, one of the most suitable statistical method of analyses seems to be multiple regression analyses. In this study, a macro of SPSS, PROCESS (Hayes, 2013) was installed in SPSS 18 and used, because it allows the users to conduct post-hoc analyses of multiple regression analyses on a 3-way interaction model.

Chapter III.

RESULTS

Preparation for data analyses

The survey data used for the analyses were completely verified at data entry by teams of graduate students and then further checked out for outliers and systematic errors by a professional statistician. In this study, as mentioned in the Method section, to address research question one, only the data of the participants with PV and isolation data in the 7th grade were analyzed. Therefore, the data might suffer from possible bias, and might not represent the whole population of the cohort in the two middle schools where the data were collected. To examine such bias, those participants who were not available for data analyses for this study but originally included in the 6th grade data, were compared with those who were available in terms of PV, isolation, aggression, shyness, social skills, and internalizing problems at the 6th grade. As a result, while no significant difference was found for PV, isolation, and shyness, those who were not included were more aggressive (t (193) =2.746, p = .007, Cohen's d = .268), suffered more internalizing problems (t (594) =2.618, p = .008, Cohen's d = .268) and had less social skills (t (564) =-2.622, p = .009, Cohen's d = .287) compared to those who were included in the analyses. These differences were considered to be caused by the fact that the children who displayed severe behavioral/emotional problems were often held back and dropped from the sample or placed in the Special Education, which prevented them from participating in peer nomination. Therefore, when interpreting the results, it should be noted that the analyzed students were a subgroup of the whole cohort that is not likely to include students with severe aggression, severe internalizing problems, and/or very low social skills, though based on the small effect sizes, the bias caused by the restriction of sample is not considered to be too large. Similarly, the

participants analyzed to address research question two is a subsample of those analyzed to answer research question one, because the students who were not included in the 8th grade data were excluded. To examine the characteristics of this subsample, within the original sample of this particular study, those whose 8th grade data were available were compared to those whose 8th grade data were not available on level of PV, isolation, all the variables of individual characteristics, and all the peer relationship variables used for the analyses. No significant difference was found between these two groups for any of these variables.

It should be noted that not all the participants selected to be included in this study responded to all the items used in this study. The data are available from all the selected participants for all the peer-rated variables, as well as PV. However, for two self-reported variables, internalizing problems and social skills, the data of some participants were not available because they did not respond to enough items in the scales for a score to be calculated. The number of participants whose data were not available for internalizing problems and for social skills was 29 and 57, respectively. However, these participants were kept in the study for the following reasons. As the analyses were conducted for each dependent variable separately, it was unnecessary to drop the participants who did not respond to all the items used in the study. Meanwhile, for maintaining the power of analyses at maximum, it is important to keep the number of the participants for each analysis as large as possible. Furthermore, no significant difference was found between those whose data were available or those whose data were not in any other variables used in this study, for either internalizing problems or social skills. The number of the participants who responded to the items contained in each variable is presented later in Table 5.

Before analyzing the data, the descriptive data for each variable used in this study are examined. First, the mean, standard deviation, and the distribution statistics for PV in the 7th and 8th grade and isolation in the 7th grade are presented (Table 3). As seen in the Table 3, the distribution of PV was positively skewed in both grades, meaning that while a majority of the students did not report much PV, there were some students who suffer from PV almost all the time or all the time. Compared to the 7th grade, in the 8th grade, the mean of PV decreased and the distribution of PV was more positively skewed, indicating that the number of students who are severely victimized dropped in the 8th grade. Likewise, the distribution of isolation in the seventh grade was positively skewed, indicating that most of the participants are not regarded as "playing alone," at all, while for some participants, many of their classmates observed them playing alone.

Next, to understand possible difference between boys and girls in this data the mean and standard deviation of PV in the 7th and 8th grade and isolation in the 7^{th} grade were calculated for boys and girls separately, and compared with each other. As seen in the Table 4, in this population, there was no significant gender differences in the level of PV in either the 7th grade (t (638) = -1.128, p = n.s.) or the 8th grade (t (558) = -0.968, p = n.s.). In addition, for boys and girls, the level of PV significantly decreased from 7th grade to 8th grade (for boys, t (283) = 3.833, p <.001; for girls. t (275) = 4.887, p <.001). In terms of isolation, boys are significantly more isolated than girls (t (544) = 3.936, p <.001).

Descriptive characteristics of the dependent variables used in the analyses are presented in Table 5. To examine the possible gender differences, the mean and standard deviation of each variable are calculated separately by gender, and compared between boys and girls using t tests (see Table 6). The results of t-tests indicated that there are significant gender differences in some

individual characteristics, such as shyness (t (598) = -3.375, p <.01) and internalizing problems (t (593) = - 4.622, p <.001). Girls were regarded as shy and suffered from internalizing problems significantly more often than boys. Significant gender differences were also found in variables of peer relationship patterns, including rejection by girls (t (532) = 4.016, p <.001), and having a mutually liked friend (t (638) = -3.256, p <.01). Compared to boys, girls were less often rejected by girls, and were more likely to have mutually liked same-sex peers.

The correlation between PV and other variables were also shown in Table 7. As seen in the table, PV had a mild but significant positive correlation with isolation for both boys (r = .138, p <.05)_and girls (r = .212, p <.001). Among the dependent variables, PV was significantly positively correlated with the internalizing problem both for boys (r = .557, p <.001) and girls (r = .500, p <.001) and with rejection by girls for both boys (r = .232, p <.001) and girls (r = .318, p <.001). PV was also significantly positively associated with rejection by boys, but only for girls (r = .235, p <.001). PV was significantly negatively related to social skills for both boys (r = -.272, p <.001) and girls (r = -.335, p <.001) and to a probability of having mutually liked friend only for girls (r = -.164, p <.01). In contrast, PV did not have significant correlations with aggression or shyness, for either boys or girls. Isolation was significantly positively correlated with shyness for both boys (r = .694, p <.001) and girls (r = .602, p <.001), with rejection by boys for both boys (r = .359, p <.001) and girls (r = .186, p <.01), and with rejection by girls for both boys (r = .342, p <.001) and girls (r = .138, p <.05). Isolation showed a significant negative correlation with aggression only for girls (r = -.149, p <.05), and with a probability of having a mutually liked friend only for boys (r = -.239, p <.001).

Relationship between PV and individual characteristics and peer relationship patterns depending on level of isolation and gender

As mentioned in the Software for Analyses subsection in the Method section, to address research question one, multiple-regression analyses were conducted on each of seven dependent variables: aggression, shyness, internalizing problems, social skills, boys' rejection, girls' rejection, and having a mutually-liked peer. In the actual analysis, first of all, a regression analysis with full factorial model of the three independent variables - PV, isolation, and gender - was conducted. If a 3-way interaction was found, using PROCESS (Hayes, 2013), a post hoc-analysis was conducted to find out the difference in the effect of PV depending on gender and the level of isolation. In this study, the selected levels of isolation were no isolation (i.e., not nominated by anyone for "play alone"), average level of isolation, and significantly high (1 SD above mean) level of isolation. If a 3-way interaction was not found, a regression analysis was conducted again only with PV, isolation, and the interaction of PV and isolation. In this case, gender was dropped from the regression model, but still included in the analysis as a controlling variable. If a 2-way interaction was found, the conditional effects of PV depending on the level of isolation were examined in the post-hoc analyses. The selected levels of isolation and PV were the same as the post-hoc analyses for a significant 3-way interaction. If a two-way interaction was not found, a multiple regression analysis with the same set of variables was conducted again, but without the interaction variables.

For the analyses, the two continuous independent variables, PV and isolation, were standardized to avoid problems of multicollinearity between the interaction term and the independent variables (Dunlap & Kemery, 1987) . Standardization of the independent variables would also make it easier to compare their effects with each other. However, to maintain the

meaning of the numbers on the coefficients, the dependent variables were not standardized. Therefore, not β, but *B* was used for the symbol representing coefficients.

The results of regression analyses are following. Among the seven dependent variables, a significant 3-way interaction effect among PV, isolation, and gender was found only for a probability of having a mutually liked peer (*B* = .802, *SE* = .245, *p* =.001). This result indicates that the effect of PV on the probability of having a mutually-liked peer is significantly different depending on the level of isolation and gender. For shyness, internalizing problems, rejection by boys, and rejection by girls, while a significant 3-way interaction effect was not found, a 2-way significant interaction effect between PV and isolation was found (for shyness, *B* = -.007, *SE* = .003, *p* =.035; for internalizing problems, *B* = -.068, *SE* = .028, *p* =.014; for rejection by boys, *B* = .010, *SE* = .004, *p* =.013; and for rejection by girls, *B* = .011, *SE* = .005, *p* =.020). This means that for these variables, PV has a different impact depending on the level of isolation, but not on gender. In contrast, for aggression and social skills, no significant interaction effect between PV and isolation was found (for aggression, *B* = -.001, *SE* = .003, *p* = .839; for social skills, *B* = .017, *SE* = .032, *p* = .598). For the variables where a significant interaction effect was found, post-hoc conditional analyses were conducted to figure out how the effect of PV changes as a function of the other one or two variables (i.e., isolation and/or gender). The results of the post-hoc analyses are described in the following paragraphs as well as presented in the Table 8.

For shyness, the simple slopes analyses showed that at all levels of isolation, PV was significantly related to shyness, but the effects of PV became stronger when the level of isolation moved from zero to average to high (for those with no isolation, *B* = -.011, *SE* = .005, *p* =.032; for those with average isolation, *B* = -.015, *SE* = .004, *p* <.001; for those with high isolation, *B* = -.022, *SE* = .005, *p* <.001). For all conditions, the more often the participants were victimized,

the less shy they were. The level of shyness at the different levels of PV and isolation is also illustrated on the Figure 3.

For internalizing problems, the main effect of PV was significant regardless of the level of isolation, but the effect was stronger when the participants were less isolated (for those with no isolation, $B = .578$, $SE = .041$, $p < .001$; for those with average level of isolation, $B = .540$, $SE = .035$, $p < .001$; for those with high isolation, $B = .473$, $SE = .040$, $p < .001$). For all the three conditions, PV was positively associated with internalizing problems. The difference in change in the level of internalizing problems depending on the level of isolation is presented in Figure 4.

For rejection by boys, the results of post-hoc analysis indicated that PV did not have a significant effect on rejection by boys, if the participants were not isolated ($B = .008$, $SE = .006$, $p = .162$). However, when their level of isolation was average or high, PV had a significant positive association with rejection by boys (for those with average isolation, $B = .014$, $SE = .005$, $p = .007$; for those with high isolation, $B = .024$, $SE = .006$, $p < .001$). This result means that non-isolated victims were not significantly different in level of rejection by boys from non-isolated non-victims, while isolated victims were significantly more rejected by boys compared to isolated non-victims. The degree of rejection by boys at different levels of PV and levels of isolation is presented in the Figure 5.

For rejection by girls, the simple slopes analyses conducted for post-hoc analyses showed that PV was significantly positively related to rejection from girls at all levels of isolation, but the effects of PV became stronger when the level of isolation moved from none to average to high (for those with no isolation, $B = .023$, $SE = .007$, $p < .001$; for those with average isolation, $B = .029$, $SE = .006$, $p < .001$; for those with high isolation, $B = .040$, $SE = .007$, $p < .001$). The result is illustrated in Figure 6.

For the probability of having a mutually-liked peer, as mentioned above, a significant 3-way interaction was found (B = .802, SE = .245, p =.001). Therefore, a post-hoc analysis was conducted to understand the difference in the effect of PV at the different levels of isolation and gender. For boys, when their level of isolation was from none to average, PV was not related to the probability of having a mutually-liked friend (for boys with no isolation, B = .268, SE = .168, p =.111; for boys with average level of isolation, B = .010, SE = .131, p =.938). However, when they were highly isolated, experiencing PV significantly reduces the probability of having a mutually-liked friend (B = -.453, SE = .191, p =.018). The direction of interaction was the opposite for girls. While PV had a significant negative effect on the probability of having a mutually-liked same-sex peer for girls with none-to-average level of isolation (for girls with no isolation, B = -.557, SE = .268, p =.004; for girls with average level of isolation, B = -.257, SE = .127, p =.043), PV did not have a significant effect for girls with high level of isolation (B = -.081, SE = .240, p =.735). Based on these results, it can be considered that for boys, isolated victims are significantly less likely to have a mutually-liked peer compared to isolated non-victims, while there were not significant difference in probability of having a mutually-liked peer between non-isolated victims and non-isolated non-victims. In contrast, for girls, non-isolated victims are significantly less likely to have a mutually-liked peer compared to non-isolated non-victims, while isolated victims are not significantly different from isolated non-victims for this aspect. These results were also illustrated in the Figure 7 and 8, with the actual estimated probability of having a mutually-liked peer at different level of PV and isolation, shown separately by gender.

As described previously, there were no significant interaction effects between PV and aggression or social skills. However, it is still important to examine whether PV has a main

effect on these variables. For this reason, a regression analyses was conducted without interaction variables, on these two dependent variables. As a result, for aggression, while PV did not have a significant main effect on aggression (B = .006, SE = .004, p = .122), isolation had a significant main effect (B = -.010, SE = .004, p =.010). When controlling the level of PV and gender, the more participants were isolated, the less they were aggressive. For social skills, PV had a significant negative association with social skills (B = -.316, SE = .040, p <.001) controlling isolation and gender, and isolation had a significant positive association with social skills (B = .096, SE = .040, p =.016), if controlling PV and gender.

Additional exploratory analyses on differences between isolated victims and non-isolated victims

The regression analyses and their post-hoc analyses conducted in the previous section revealed how PV is related to individual characteristics and peer relationship patterns at different levels of isolation. However, these analyses did not allow for the direct comparison of isolated victims and non-isolated victims. Therefore, to understand the difference in isolated victims and non-isolated victims further, it is necessary to investigate the effects of isolation at the different levels of PV. To examine them, post-hoc analyses of the regression analyses were conducted again for the variables on which a significant interaction effect between PV and isolation was found, but this time, the simple slope effect of isolation was calculated at the different levels of PV. The results were presented in the Table 9.

For shyness, a significant positive main effect of isolation was found regardless of the level of PV, but the effect became weaker as the level of PV increased from low to average to high (for those with low PV, B = .091, SE = .006, p = <.001; for those with average PV, B = .084, SE = .004, p <.001; for those with high PV, B = .077, SE = .005, p <.001). This result shows that isolated victims are more shy compared to non-isolated victims, but the difference in

shyness is smaller compared to the difference between non-isolated victims and non-isolated non-victims.

For internalizing problems, while the effect of isolation was not significant for those with low PV (*B* = .055, *SE* = .050, *p* = .269), and those with average PV (*B* = -.013, *SE* = .036, *p* = .725), a significant main effect was found for those with high PV (*B* = -.080, *SE* = .040, *p* = .046). The direction of the effect indicates that isolated victims suffer *less* internalizing problems compared to non-isolated victims.

For rejection by boys, the effect of isolation was significantly positive for those with all three levels of PV, and the effect became stronger when the level of PV increased from low to average to high (for those with low PV, *B* = .020, *SE* = .007, *p* = .006; for those with average PV, *B* = .030, *SE* = .005, *p* = <.001; for those with high PV, *B* = .040, *SE* = .006, *p* = <.001). This indicates that isolated victims were more likely to be rejected than non-isolated victims, and their difference in the degree of rejection by boys is larger than those between isolated non-victims and non-isolated non-victims.

For rejection by girls, the results was similar for those for rejection by boys; a significant positive main effect of isolation was found for all three levels of PV, and the effect of isolation increased as the level of PV went up (for those with low PV, *B* = .022, *SE* = .008, *p* = .008; for those with average PV, *B* = .032, *SE* = .006, *p* = <.001; for those with high PV, *B* = .043, *SE* = .007, *p* = <.001) . Isolated victims were significantly more rejected by girls than non-isolated victims.

For the probability of having a mutually-liked peer, as a 3-way interaction effect among PV, interaction, and gender was found in the original analysis, a post-hoc analysis was conducted to examine the effect of isolation depending on gender and level of PV. Simple slopes analyses

showed that for boys, the effect of isolation was not significant for those with low level of PV (*B* = -.107, *SE* = .148, *p* = .471), but became negatively significant and increased when the level of PV increased to average to high (for those with average PV, *B* = -.567, *SE* = .140, *p* = <.001; for those with high PV, *B* = -1.027, *SE* = .191, *p* = <.001). For girls, the effect of isolation was significant and negative for those with low PV (*B* = -.666, *SE* = .309, *p* = .031), but for those who suffer from average or high level of PV, the effect of isolation was not significant (for those with average PV, *B* = -.330, *SE* = .178, *p* = .064; for those with high PV, *B* = .006, *SE* = .191, *p* = .975). These results indicate that isolated victimized boys are significantly less likely to have a mutually liked peer than non-isolated victimized boys, whereas isolated victimized girls are as likely to have a mutually liked peers as non-isolated victimized girls.

Difference in the factors that contribute to reduction of PV depending on the level of isolation

Research question two focuses on the difference between isolated victims and non-isolated victims in factors that facilitate the escape from victimization. To address this question, multiple-regression analyses were conducted, with the decrease in PV from seventh to eighth grade as the dependent variable. As mentioned in a previous section, the purpose of the analyses is to figure out whether each of individual characteristics/peer relationship variables that are hypothesized to be related to PV also contribute to a decrease in PV in the following year, and to examine whether such "protective factors" are different depending on gender and the level of isolation. To meet this purpose, for each possible individual characteristic/peer relationship variable - aggression, shyness, internalizing problems, social skills, rejection by boys, rejection by girls, and having a mutually-liked peer - a regression analysis was conducted separately. In each regression analysis, one individual factor/peer relationships in the 7th grade was selected and added in the model as an independent variable, together with isolation in the 7th grade,

gender, and 2-way interactions and a 3-way interaction among each of the variables. For each analysis, 7th grade PV was also added in the model as a covariate. When a significant interaction effect was found, post-hoc analyses were conducted to find out the direction of the effect and calculate the effect of the individual characteristic/peer relationship variable at different levels of isolation. To estimate the level of actual decrease in PV, the dependent variable, change in PV from 7th to 8th grade, was not standardized.

The results of the regression analyses are as follows. No significant 3-way interaction effect was found for any individual characteristic/peer relationship variables. A significant 2-way interaction effect was found only for internalizing problems (B = -.042, SE = .021, p =.044). Post-hoc simple slopes analyses showed that, while no significant main effect of internalizing problems was found when the participants were not isolated at all (B = -.048, SE = .028, p =.092), a significant negative main effect was found when their level of isolation was average or high (for those with average level of isolation, B = -.071, SE = .026, p =.006; for those with high level of isolation, B = -.114, SE = .033, p <.001). As unstandardized coefficients were used for the post-slope analyses, the results can be interpreted as following. For the participants with average (high) level of isolation, if they experience less internalizing problems by 1SD, they are expected to experience more decrease in victimization by .71 (.114) point on the total victimization score of the SEQ-S. In other words, when the participants were isolated at an average level or more, those with less internalizing problems were more likely to experience a decrease in PV. The interaction effect and the estimated change in PV from 7th to 8th grade at different levels of isolation and internalizing problems are illustrated in Figure 9. The graph shows that those who suffer from low levels of internalizing problems were estimated to experience a decrease in PV by 0.2-0.25 points on the five point scale on average, depending on

the level of isolation, while those who suffer from a high level of internalizing problems were estimated to experience a decrease in PV by 0.01-0.1 points on average. Additionally, when dropping the interaction variables from the analysis, a significant main effect of shyness on decrease in PV was found (B = .063, SE = .026, p =.017). This means that if shyness of a participant increases by 1SD, he/she would experience more decrease in total victimization by .63 point on the total victimization score of the SEQ-S. The result indicates that the more shy the participants were, the more likely they were to experience a decrease in PV.

Chapter IV.

DISCUSSION

Summary of the findings

The purpose of this dissertation study was to increase the understanding of the differences between non-isolated victims and isolated victims, as a part of an attempt to understand the diverse mechanisms underlying the development of PV and apply such knowledge to tailor the subcomponents of intervention programs of PV for different types of victims. To meet this purpose, two research questions were proposed. The first one was to examine how the relationship between self-reported PV and its risk factors/concurrent correlates are different depending on the level of peer-rated isolation and gender. The second one was to investigate factors that are associated with a decrease in peer victimization in the following year and examine whether such factors are different for isolated victims and non-isolated victims. For each research question, several hypotheses were developed. In the first part of the discussion, after the hypotheses are reviewed, the results of the analyses will be summarized.

For research question one, the first hypotheses were was that a) for aggression, shyness, rejection by boys/girls, and likelihood of having a mutually-liked peer, the effect of PV would be different depending on the level of isolation, while b) for internalizing problems and social skills, the effect of PV would be consistent regardless of level of isolation. The actual predictions about the effect of PV for each of two types of victims, non-isolated victims and isolated victims, were presented in the following two hypotheses. For non-isolated victims, PV was expected to be positively related to aggression and internalizing problems, and negatively related to social skills. For isolated victims, PV was expected to be positively related to internalizing problems, rejection by boys, and rejection by girls, and negatively related to shyness, social skills, and

likelihood of having mutually liked peers. In other words, it was considered that some individual characteristics/peer relationship patterns (i.e., aggression, shyness, rejection by boys, rejection by girls, and likelihood of having a mutually liked peer) were only related to being a specific type of victims, while other characteristics (i.e., internalizing problems and social skills) were shared among different types of victims.

The results showed that non-isolated victims were not as different from isolated victims as expected. While PV was related to rejection by boys only for isolated victims, for both types of victims, PV was significantly and positively related to internalizing problems and rejection by girls, was significantly and negatively related to shyness and social skills, and was not significantly related to aggression. However, the analyses still showed a significant 2-way interaction effects between the PV and isolation for many of these variables, including internalizing problems, rejection by girls, and shyness, indicating that for these variables, the size of PV effect was different depending on the level of isolation of the participants. For internalizing problems, the effect of PV was larger for non-isolated participants than for isolated participants, and for rejection by girls and shyness, the effect of PV was larger for isolated participants than for non-isolated participants. In addition, for having a mutually-liked peer, a significant 3- way interaction effect was found among PV, isolation, and gender. For this variable, a significant negative relationship with PV was found only for boys with high levels of isolation and girls with low or average levels of isolation. In other words, for boys, PV had a significant negative relationship with having a mutually-liked peer when their level of isolation was high, but not when their level of isolation was none or average. For girls, PV was significantly negatively related to having a mutually-liked peer when they were not isolated at all or isolated at average level, but was not when they were highly isolated.

In this way, if focusing on the relationship between PV and various individual characteristics/peer relationship patterns, isolated victims were different from non-isolated victims only in the strength of the relationship between PV and some of these variables. However, additional exploratory analyses revealed the difference between isolated victims and non-isolated victims more clearly. The analyses revealed that isolation was significantly positively related to shyness, rejection by boys, and rejection by girls, for those at all levels of PV, but for shyness, the relationship was stronger for those who suffer less from PV, and for rejection by boys and girls, the relationship was stronger for those who suffer from more PV. Surprisingly, isolation was significantly negatively related to internalizing problems, only for those with high level of PV. Isolation was also significantly and negatively related to the likelihood of having a mutually liked peer for boys who suffer from high levels of PV, but not for girls suffering from high levels of PV.

These results indicate that isolated victims were more shy, more likely to be rejected by boys and girls than non-isolated victims and less likely to have a mutually liked peer only if they were boys, while non-isolated victims were more aggressive and had more internalizing problems. Isolated victims and non-isolated victims were not significantly different in social skill. Among the differences that were found between isolated victims and non-isolated victims, difference in aggression was simply explained by the effect of isolation. For shyness, the difference between isolated participants and non-isolated participants was actually smaller when they were victimized. However, for other variables, rejection by boys and girls, and internalizing problems, the difference between isolated participants and non-isolated participants was larger when they were victimized.

For the second research question, it was hypothesized that higher social skills, lower rejection from boys and girls, and having at least one mutually-liked friend facilitates escape from victimization in the following year, regardless of the types of victims, while low levels of aggression also facilitates escape from PV for non-isolated victims. The hypothesis was not supported. Instead of these variables, shyness was found to be associated with decrease in PV in the following year, regardless of the level of isolation, and low level of internalizing problems was also significantly related to decrease in PV for isolated victims, when controlling the original level of PV.

Expanding understanding the function of variables on different types of victims

As described above, the results of the analyses revealed similarities and differences between isolated victims and non-isolated victims. At this stage, it is necessary to consider how these results can contribute to understanding of the diverse mechanisms of underlying the development of PV and eventually, creating specific subcomponents of intervention program. As the first step of this attempt, it is important to expand the understanding of how each of individual characteristics/peer relationship patterns is related to PV, for different types of victims. To meet this goal, in this section, the findings of the relationship between PV and each of the variables will be thoroughly discussed, with possible alternative interpretation of the results and the implication of the results.

First of all, the findings about the relationship between PV and two individual traits, aggression and shyness, were somewhat unexpected. As opposed to the hypothesis, no significant relationship between PV and aggression was found for non-isolated participants. This result can be interpreted in several different ways. The most straightforward interpretation is that even within a peer group, victimization is not often triggered by aggression as expected from

Zimmer-Gembeck et al. (2012), but more frequently by different behaviors or individual characteristics. In fact, as presented in the introduction, Pronk & Zimmer-Gembeck (2010) found various reasons for being relationally victimized, including both positive and negative characteristics of victims. Therefore, it is possible that in this particular sample, individual traits other than aggression can be primary triggers of PV within a peer group. Another possible interpretation of the result was that aggression was not related to total PV, but might be related to only subtypes of PV. To check this possibility, a regression analysis was conducted with the same combination of variables as the original analysis, except for the replacement of PV with either overt or relational victimization. As a result, while no significant interaction effects between either type of victimization and isolation was found, controlling isolation, aggression was significantly positively related to relational victimization (B = .010, SE = .004, p =.009), but not to overt victimization. Taken together, relational victimization seems to be somewhat triggered by aggression, but overt victimization seems to be triggered by other factors. Nevertheless, based on these two interpretations, aggression does not seem to differentiate isolated victims from non-isolated victims. The other possible interpretation of the result is that PV might actually have a positive relationship with aggression for either isolated victims or non-isolated victims, but such a relationship was not found for this sample due to the restricted range of aggression. As mentioned in the beginning of the result section, because the data include only the participants whose peer-rated data were available, many excessively aggressive students were dropped from the sample as they were often retained or placed in a special education classroom. Therefore, a positive relationship between PV and aggression might have been found, if such adolescents could have been included in the analyses, though it would not be highly probable

based on the small effect size of the difference between the original sample and the sample analyzed in this study.

In terms of shyness, as expected, for isolated victims, shyness was significantly and negatively related to PV. What was unexpected was that shyness was also found to be significantly and negatively associated with PV for non-isolated victims, even though the relationship was somewhat weaker compared to the case of isolated victims. More surprisingly, shyness was also found to be a protective factor for PV in the following year for both types of victims, when controlling the current level of victimization. While these results are somewhat contradicting of some previous studies that found shyness as a risk factor for PV (e.g., Boivin, Petitclerc, Feng, & Barker, 2010, measuring peer-reported shyness using two items, “play alone” and “very shy”), they indicate a possibility that behaving in a shy way keeps one from being involved in peer victimization in a certain context. In fact, Aoki (2006) revealed that some female victims escaped from PV only when they stopped clinging to the peer group that victimized them and felt comfortable being alone at times. Such adolescents might be perceived as "shy" by their peers just because they choose not to interact with others as often as the other adolescents, even though they still sometimes interact with their peers. In addition, it is also possible that shyness can be a protective factors from overall maladjustment, in a specific environment, like schools where the survey was conducted. The students in two middle schools suffered from high retention rate (16.6 % of the students were retained before the 6^{th} grade) and low academic achievement (Average Percentage = 73.8). In this kind of situation, staying away from a majority of peers might be a "wise" and adaptive behavior to avoid any kinds of school problems, while they are still perceived as shy. In addition, for this sample, shyness was significantly positively correlated with a peer-rated prosocial behavior, “helping people” (*r*

=.106, $p<.01$), which also supports a possibility that shy students were those who behaved more appropriately. To clarify the specific context that makes shyness a protective factor of PV, further research is necessary.

As expected, PV was related to internalizing problems for both isolated adolescents and non-isolated adolescents. Interestingly, the relationship between PV and internalizing problems were larger for non-isolated victims than for isolated victims. Additionally, it was also found that for those with high PV, isolation was significantly negatively related to internalizing problems. These results show that compared to isolated victims, non-isolated victims suffer more from internalizing problems. What explains this difference? One of the possible explanations is that non-isolated victims may have direct contact with the aggressors more often than isolated victims, and as a result, non-isolated victims more often suffer from psychological distress than isolated victims. This also possibly implies that the "walking away" strategy, which is often taught in social skill groups to cope with stressful peer conflicts (e.g., McGinnis, Sprafkin, Gershaw, & Klein, 2011), might actually reduce the psychological problems victims suffer from the conflicts. Another possible explanation of this difference is that non-isolated victims and isolated victims might be different in terms of their relationship with aggressors. Taking account of the original dichotomization between victimization within group and victimization incorporating isolation from a group that led to development of the research questions in this study, it is possible to assume that non-isolated victims are more likely to be victimized by a group of their friends whereas isolated victims are more likely to be victimized by those whom they do not regard as friends. Therefore, it can be inferred that non-isolated victims suffer more from internalizing problems because they were victimized by their friends who are expected to not attack, but support them, while isolated victims suffer less just because they do not have such

expectation toward the aggressors. Surprisingly, only one study (Card & Hodges, 2007) was found to have investigated how the relationship between the aggressors and victims is associated with the level of internalizing problems the victims suffer from. The results of this study does not support the hypothesis that victimization from friends causes more internalizing problems; victimization from friends was actually associated with lower peer-reported internalizing problems. Nevertheless, to draw a clear conclusion, further study is necessary. Internalizing problems were also found to be one of the variables that were associated with whether adolescents actually experience a decrease in PV from the 7th to the 8th grade, especially those who were isolated. This finding is useful for tailoring subcomponents of intervention program as it actually suggests the importance of focusing on the reduction of internalizing problems to prevent isolated victims from remaining in victimization later.

In terms of social skills, as expected, they were negatively related to PV for both isolated and non-isolated victims. This specific result supports the use of social skill training as a prevention of PV, regardless of the types of victims. Specifically, as the social skills scale consisted of smaller scales assessing anger control, social assertiveness, and self-control in this study, if social skill training is provided for victims of PV, these skills should be included as target skills. However, this study also found that these categories of social skill were not related to decrease in PV in a following year, when controlling original PV. This results leads to an inference that the difference in social skill that were assessed in this study (anger control, social assertiveness, and self-control) might contribute to whether an adolescent becomes a victim or not, but once an adolescent starts to be victimized, such difference does not explain whether he/she continues to be victimized. Nevertheless, it is too early to conclude that social skill is not important in escape from victimization, as this study could examine the effect of only a limited

set of social skills, due to the nature of secondary analyses. For example, social skills that are often taught in middle school but not covered in this study include problem solving, resolving conflicts, showing empathy, and reducing stress (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). Since social skill training is one of the interventions that are relatively easy to implement in school settings, further studies should be conducted to find out what types of social skill training can be useful at different stages of PV experiences (i.e., before experiencing PV and after experiencing PV).

This study also investigated the difference in the relationship between PV and rejection by boys/girls, depending on one's level of isolation. The findings were that PV was significantly and positively related to both rejection by boys and rejection by girls when the participants were isolated, but only to rejection by girls when the participants were not isolated, while the effect of PV on rejection by girls was also exacerbated when the level of isolation increased. This combination of results leads to several possible interpretations, depending on the assumed direction of the effect. If rejection is assumed to cause PV, the results can be interpreted as that girls might be more likely to victimize peers they do not like within peer group than boys, while boys may start to victimize those they do not like only when they were isolated. Conversely, if PV is assumed to cause rejection, the interpretation becomes the following; girls do not like peers who are victimized regardless of the levels of isolation, whereas boys do not like peers who are both isolated and victimized, but not those who are victimized without being isolated. In either case, these results highlight a possible gender difference in how disliked peers are treated, as well as how PV influences the social preferences of peers. Additionally, the results also indicate the importance for middle schools to provide adolescents, specifically, girls, with opportunities to have a formal discussion about how to interact with the peers they do not like.

Finally, this study clearly demonstrated that the relationship between PV and the likelihood of having a mutually liked peer depends on both the level of isolation and gender. For boys, PV was significantly negatively related to likelihood of having a mutually-liked peer only when they were isolated. Looking at the figure illustrating the relationship among PV, isolation, and gender (Figure 7) and the result of additional analysis (Table 9) in detail, among all the boys, those who are both highly isolated and highly victimized are remarkably less likely to have a mutually-liked peers, compared to all the other types of boys. Combined with the findings about the relationship between PV and rejection by boys/girls, boys who are isolated victims seem to have remarkably poor peer relationships compared to other boys. For girls, PV was significantly and negatively related to likelihood of having a mutually-liked peer only when they were not isolated. Along with the result of the additional analysis, it was found that among all the girls, non-isolated, non-victimized girls had a remarkably high likelihood of having a mutually liked peer, compared to isolated girls and victimized girls. Therefore, in contrast to boys, for girls, poor peer relationship patterns seems to be related not only to being isolated victims, but also to being non-isolated victims. Taken together, these findings highlight the importance of incorporating the influence of gender in increasing understanding the diverse mechanisms of PV, specifically, the peer relationship patterns of different types of victims.

Implication of the results about protective factors for future victimization

As mentioned in a previous section, in contrast to the hypotheses, only shyness and low internalizing problems were found to be related to a decrease in PV in the next year, if controlling for the previous level of victimization. The other variables, such as high social skills and having a mutually-liked peer were not found to be significantly related to a reduction of PV. However, it might be too early to conclude that these variables are not at all related to reduction

of PV for all the adolescents in this age. In fact, as introduced in the introduction, peer variables were found to be related to change in the level of victimization in a previous study (Wolke, et al., 2010). In this case, the reasons that some variables were not found as protective factors might be related to specific characteristics of the sample of this study. One of such remarkable characteristics is the change of overall level of PV from 7th to 8th grade. As can be seen from Table 3, there was significant drop in overall PV from seventh to eighth grade in this sample. This indicates possible existence of an environmental variable that affects the degree of PV of all the students, over and beyond the effect of any other variables. For example, in this school, the 8th grade students are the oldest in the school. They do not have 9th and 10th graders to victimize them and their social dominance likely protects them from 6th and 7th graders. In addition, given their social dominance they might be more satisfied with their position among peers and feel less need to attack one other to obtain dominant positions. Under such circumstance, the effect of other variables, specifically, peer variables, might become smaller. While it is difficult to test this hypothesis just based on the data used in this study and no previous study was found to explicitly test the moderating effect of being in the highest grade in a school on the relationship between PV and other factors, further research would facilitate understanding about the effects of each variable on the decrease in PV from one grade to another.

General strengths and limitations of this study

The design of this study had several strengths and limitations that may influence the interpretation of its results. One of the remarkable strengths of this study is the high ethnic/racial diversity of the sample in the data analyzed. The adolescents who participated in the original longitudinal study consisted of relatively heterogeneous students; approximately 40 % of them were Latino/Hispanic, 30 % were White, and 20 % were Black/African American. Due to this

high racial diversity, the results of the study are considered to include relatively smaller bias compared to the other studies that gathered data from a relatively homogeneous group of students. Another notable strength of this study is that it used some self-reported variables, some peer-rated variables, and a peer network analysis variable (i.e., mutually liked). While PV, internalizing problems, and social skills were measured based on self report, aggression, shyness, rejection by boys/girls and mutually liked friends were assessed with peer-rating and peer network analysis. Given issues of shared-method variance (Lindell & Whitney , 2001), the relationship between PV and the other two self-reported variables (internalizing problems and social skills) might be a bit overestimated. However, by adopting peer-rated variables, this issue was avoided for the other variables, which may have resulted in estimating the effect of PV on other variables more accurately.

There are also several limitations in the design of this study. First, as shown in the preliminary analyses, this study did not include groups of the adolescents who exhibit severe behavioral/emotional problems because their peer-rating data was not available. Dropping adolescents with excessive behavioral/emotional characteristics from the analyses might have had some impact on the results of the data because a part of such adolescents may consist a group of victims with unique characteristics, though the small effect size found in the difference from the original sample and the sample analyzed in this study indicate that such possibility is small, if any. Second, in this study, isolation, shyness, and rejection by boys/girls were measured using single items, to avoid conceptual confusion with other related variables. For example, even though the peer-rating dataset include an item, "left out," which is conceptually related to both shyness and isolation, this item was not used to compose either of them, because leaving out is considered a method of peer victimization. Because all of these single-item variables were peer-

rating variables whose scores are estimated based on the judgment of all the raters in the classroom, the scores are considered to be less vulnerable to error compared to a variable assessed by a self-reported single item. Nevertheless, compared to variables that are consisted of multiple items/questions, the scores of these single-item variables probably had more errors, which might have led to underestimate the effect of PV on these variables.

Implication of the findings for application and future research

Overall, this study contributes to the understanding of the diversity in the characteristics of victims. While the size of differences were not as large as expected, isolated victims and non-isolated victims were found to be two distinct groups of victims confronted with different challenges; isolated victims, specifically isolated victimized boys, tend to have poorer peer relationship patterns, while non-isolated victims tends to suffer more from internalizing problems. Meanwhile, some similarities were found between these two types of victims; both of them are less shy and have less social skills compared to the non-victimized counterparts. This study also identified possible individual characteristics that are related to a decrease in PV in a following year. The study suggests that shyness facilitates escape from victimization for both non-isolated victims and isolated victims, and that low internalizing problems can be a protective factor for isolated victims.

These findings have some implications for practices in school and clinical settings. First of all, the findings of this study supports the importance of social skill training as an attempt to prevent adolescents from suffering from PV, while it might be less effective if they start to experience PV, as social skill was not significantly related to a decrease in PV a year later when controlling the original level of PV. Second, isolated victims should be prioritized to receive clinical services that reduce their internalizing problems such as depression and anxiety (e.g.,

Cognitive Behavioral Therapy), as the level of internalizing problems had a significant relationship with decrease in PV for isolated victims. Third, as rejection by boys/girls were significantly and positively related to PV, middle schools should hold a discussion with the students about how they interact with their peers whom they do not like, without victimizing them.

Finally, this study indicated some directions for future research. First, due to the nature of secondary analyses, only a limited number of variables could be investigated for its relationship with PV at different levels of isolation. As this study showed that isolated victims and non-isolated victims were different, specifically in their peer relationship patterns, these two types of victims are expected to be different in some other peer relationships patterns, including popularity, characteristics of their friends, types of peers they often hang out, and so on. These two types of victims might also be different in who bullies them and who protects them during PV experiences. In addition, isolated victims and non-isolated victims might also be different in some individual characteristics that were not examined in this study, such as physical appearance, athletic ability, and personal interest, as well as behavioral patterns, including reaction patterns/coping strategies toward victimization. Moreover, these two types of victims might be also different in how they are perceived by teachers, and how the relationship with teachers affects the level of PV. Future studies are necessary to expand the understanding of difference between isolated victims and non-isolated victims.

Second, in this study, the relationships with PV and each individual variable/peer relationship pattern was analyzed separately. However, it might be also worthwhile to investigate how these variables work "together" on the development/stabilization of PV, for those with different levels of isolation. In fact, the "number" of risk/protective factors was found to be

related to development of various positive/negative psychological, behavioral, and social outcomes in previous studies, such as problem behaviors in adolescence (Jessor, Van Den Bos, Vanderryn, Costa, & Turbin, 1995), anxiety and depression for abused women (Carlson, McNutt, Choi, & Rose, 2002), and overall victimization in adolescence (Christiansen & Evans, 2005). Therefore, it is also reasonable to assume that total number of risk/protective factors is related to experience of PV. Moreover, it is also possible that the" combination" of individual/peer factors that lead to facilitate or prevent victimization might also be different depending on the participant's level of isolation. As there are some established methods of clinical assessment that explore and identify various protective factors (e.g., eco-map, Hartman, 1995), studies focusing on number and combination of protective factors would directly contribute to improvement in the methods of identifying victims who need help most.

Third, in this study, shyness was found to be negatively related to PV, controlling for isolation. While this is inconsistent with the findings from prior studies, it implies that shyness can be a protective factor for PV in a specific context, and/or that some components of behaviors that are regarded as shy reduce the risk for PV. In either case, future study should be conducted to increase understanding how PV is actually related to shyness.

Forth, in this study, while social skill showed a significant negative relationship with PV for both isolated and non-isolated participants, only a few types of skills were included in the social skills variable, and as a result, this study provides only limited information about what types of social skills should be taught. To address this issue, it is important to conduct a further study that focuses on more diverse types of social skills and clarifies types of social skills that should be taught for a specific type of victim. Additionally, as this study just focused on the victims of PV, it did not investigate what social skills help aggressors stop bullying. However, if

we plan to develop a classroom-level intervention, specifically one including discussion with the students about how to interact with peers whom they do not like, it is also necessary to conduct a study that identifies types of social skills that should be taught for aggressors.

Table 1: Summary of hypotheses related to Research Question 1- the hypothesized relationship between PV and individual/peer variables for each different type of victim (isolated, non-isolated)

	Interaction effect	Relationship with PV	Non-isol victim	Isol victim
Aggression	Yes	+	Yes	
Shyness	Yes	-		Yes
Internalizing Problems	No	+	Yes	Yes
Social Skills	No	-	Yes	Yes
Rejection from boys	Yes	+		Yes
Rejection from girls	Yes	+		Yes
Mutually-Liked peer	Yes	-		Yes

Note: Yes/No on the column, “interaction effect” indicates whether PV and isolation would have an interaction effect on each variable. The “+” on the column, relationship with PV indicates hypothesized positive relationship between PV and each variable, and “-“ indicates hypothesized negative relationship. “Yes” in Non-isol (= non-isolated) victims column and/or isol (= isolated) victims column means that the relationship between PV and the specific variable are hypothesized to be observed for the corresponding type of victims.

Table 2: Summary of hypotheses related to Research Question 2- the hypothesized relationship between each individual/peer variables and decrease in PV from 7th to 8th grade for different type of victims (isolated, non-isolated)

	Interaction effect	Rel. with PV decrease	Non-isol victim	Isol victim
Aggression	Yes	-	Yes	
Shyness				
Internalizing Problems				
Social Skills	No	+	Yes	Yes
Rejection from boys	No	-	Yes	Yes
Rejection from girls	No	-	Yes	Yes
Mutually-Liked peer	No	+	Yes	Yes

Note: Yes/No on the column, "interaction effect" indicates whether each variable has an interaction effect with isolation on decrease in PV. The "+" on the column, Rel. (= relationship) with PV decrease indicates hypothesized positive relationship between each variable and decrease in PV, and "-" indicates hypothesized negative relationship. "Yes" in Non-isol (= non-isolated) victims column and/or isol (= isolated) victims column means that the relationship between decrease in PV and the specific variable are hypothesized to be observed for the corresponding type of victims.

Table 3: Descriptive data for the independent variables of peer victimization and isolation

	N	*M*	*SD*	Min.	Max.	Skewness	Kurtosis
Peer victimization (7th) (SR)	640	1.787	0.587	1.00	4.18	0.930	0.812
Peer victimization (8th) (SR)	560	1.655	0.585	1.00	4.74	1.767	4.859
Isolation (7th) (PR)	640	0.051	0.091	0.00	0.68	2.949	10.966

Note. Min. = minimum; Max. = maximum; SR = self-reported; PR = peer-rated variable; Peer victimization is measured using the average scores of victimization items in Social Experience Questionnaire, while isolation is measured with nomination for the item, "play alone," in Revised Class Play

Table 4: Means and standard deviations of the independent variables, peer victimization and isolation, by gender

	Boys			Girls				
	M	*SD*	*n*	*M*	*SD*	*N*	*t*	
Peer victimization (7th) (SR)	1.761	0.620	323	1.813	0.551	317	-1.128	
Peer victimization (8th) (SR)	1.632	0.655	284	1.679	0.630	276	-.968	
Isolation (7th) (PR)	0.064	0.107	323	0.037	0.068	317	3.936	***

Note. SR = self-reported; PR = peer-rated variable; Peer victimization is measured using the average scores of victimization items in Social Experience Questionnaire, while isolation is measured with peer nomination for the item, "play alone," in Revised Class Play
$^{***}p < .001$ $^{**}p < .01$. $^{*}p < .05$

Table 5: Descriptive data of risk factors/concurrent correlates of peer victimization and isolation (raw data)

	n	*M*	*SD*	Min.	Max.	Skewness	Kurtosis
Individual characteristics							
Aggression (PR)	640	0.065	0.092	0.000	0.603	2.535	7.494
Shyness (PR)	640	0.069	0.132	0.000	0.824	2.781	8.351
Internalizing problems (SR)	611	-0.004	0.164	-3.000	6.559	0.863	0.831
Social Skills (SR)	583	0.016	1.659	-4.661	4.051	-0.061	-0.176
Peer Relationship Patterns							
Rejection from boys (PR)	640	0.083	0.130	0.000	0.941	2.528	8.729
Rejection from girls (PR)	640	0.104	0.151	0.000	0.900	2.118	5.346
Having a mutually-liked friend (PR)	640	0.619	0.486	0.000	1.000	-0.490	-1.765

Note: Min. = minimum, Max. = maximum; SR = self-report; PR= peer-rated; Aggression was measured using 6 items in Revised Class Play (RCP); Shyness was measured by an item "very shy," in RCP; Internalizing problems was the standardized weighted sum of the scores on depression, anxiety, and lower self-esteem; Social skills was the standardized weighted sum or anger control, social assertiveness, and self-control; Rejection from boys (girls) was proportion of the boys (girls) who " like least" the participant; Having a mutually liked friend is whether the participant have someone who nominate "like most" with each other (1) or not (0)

Table 6: Means and standard deviations of the of risk factors/concurrent correlates of peer victimization and isolation, by gender

	Boys			Girls			Stat.	
	M	*SD*	*n*	*M*	*SD*	*n*	*t*	
Individual Characteristics								
Aggression (PR)	.068	.097	323	.061	.087	317	.925	
Shyness (PR)	.052	.114	323	.087	.146	317	-3.375	**
Internalizing Prob. (SR)	-.302	1.502	310	.303	1.722	301	-4.622	***
Social Skills (SR)	.122	1.571	296	-.094	1.741	287	1.579	
Peer Relationship Patterns								
Rejection by boys (PR)	.082	.130	323	.085	.130	317	-.237	
Rejection by girls (PR)	.127	.180	323	.080	.109	317	4.016	***
Having a mutually-liked friend (PR)	.557	.497	323	.681	.467	317	-3.256	**

Note: SR = self-report; PR= peer-rated; Aggression was measured using 6 items in Revised Class Play (RCP); Shyness was measured by an item "very shy," in RCP; Internalizing problems was the standardized weighted sum of the scores on depression, anxiety, and lower self-esteem; Social skills was the standardized weighted sum or anger control, social assertiveness, and self-control; Rejection from boys (girls) was proportion of the boys (girls) who " like least" the participant; Having a mutually liked friend is whether the participant have someone who nominate "like most" with each other (1) or not (0)

$^{***}p < .001$ $^{**}p < .01$. $^{*}p < .05$

Table 7: Correlations among peer victimization, isolation, individual and peer risk factors/concurrent correlates

	PV	Isol	Aggr.	Shy	Int. Prob	Social Skills	Boy Rej	Girl Rej	Mut. lik friend
PV	-	.212 ***	.055	.007	.500 ***	-.335 ***	.235 ***	.318 ***	-.164 **
Isolation	.138 *	-	-.149 *	.602 ***	.096	.026	.186 **	.138 *	-.113
Aggression	.037	-.043	-	-.290 ***	.070	-.176 **	.360 ***	.406 ***	.076
Shyness	-.039	.694 ***	-.166 **	-	.041	.049	-.004	-.147 *	.020
Internalizing problems.	.557 ***	.012	.056	.132 *	-	-.616 ***	.015	.075	.018
Social Skills	-.272 ***	.062	-.194 **	.120 *	-.541 ***	-	-.062	-.045	.010
Rejection by boys	.092	.359 ***	.351 ***	.053	.038	-.018	-	.462 ***	.015
Rejection by girls	.232 ***	.342 ***	.294 ***	.076	.134 *	-.099	.495 ***	-	-.084
Having mutually liked friend	-.067	-.239 ***	.118 *	-.157 **	-.064	.072	-.101	-.128 *	-

Note. The bottom-left part of the table shows correlations for boys, and the top-right part shows correlations for girls; N=291 for boys, N = 285 for girls; PV = Peer victimization; Isol = Isolation, Aggr = Aggression, Shy = Shyness; Int Prob = Internalizing problem; Boy Rej = Rejection by boys; Girl Rej = Rejection by girls; Mut. lik friend = Having mutually liked friend.
*** p <.001 ** p <.01. * p < .05

Table 8: The conditional effect of peer victimization on different variables depending on the level of isolation

	Isolation											
	None			Average			High			PV x Isolation		
Dependent Variables	*B*	*SE*	*p*	*B*	*SE*	*p*	*B*	*SE*	*p*	*B*	*SE*	*p*
Shyness	-.011	.005	.032	-.015	.004	<.001	-.022	.005	<.001	-.007	.003	.035
Internalizing Problems	.578	.041	<.001	.540	.035	<.001	.473	.040	<.001	-.068	.028	.014
Rejection by boys	.008	.006	.162	.014	.005	.007	.024	.006	<.001	.010	.004	.013
Rejection by girls	.023	.007	<.001	.029	.006	<.001	.040	.007	<.001	.011	.005	.020
Mut. Like. Peer (Boys)	.268	.168	.111	.010	.131	.938	-.453	.191	.018	-.463	.159	.004
Mut. Like. Peer (Girls)	-.446	.153	.004	-.257	.127	.043	.081	.240	.735	.338	.186	.069

Note. Mut. Like. Peer = Having a mutually liked peer; Both peer victimization and isolation were standardized. For all the dependent variables except for internalizing problems, the variables were not standardized. For internalizing problems, the variable was standardized; For having a mutually liked peer, logistic regression analyses were conducted. As 3-way interaction was significant, the slope analyses were conducted separately by gender.

Table 9: The conditional effect of isolation on different variables depending on the level of PV

	Peer Victimization											
	Low			Average			High			PV x Isolation		
Dependent Variables	*B*	*SE*	*p*	*B*	*SE*	*p*	*B*	*SE*	*p*	*B*	*SE*	*p*
Shyness	.091	.006	<.001	.084	.004	<.001	.077	.005	<.001	-.007	.003	.035
Internalizing Problems	.055	.050	.269	-.013	.036	.725	-.080	.040	.046	-.068	.028	.014
Rejection by boys	.020	.007	.006	.030	.005	<.001	.040	.006	<.001	.010	.004	.013
Rejection by girls	.022	.008	.008	.032	.006	<.001	.043	.007	<.001	.011	.005	.020
Mut. Like. Peer (Boys)	-.107	.148	.471	-.567	.140	<.001	-1.027	.258	<.001	-.463	.159	.004
Mut. Like. Peer (Girls)	-.666	.309	.031	-.330	.178	.064	.006	.191	.975	.338	.186	.069

Note. Mut. Like. Peer = Having a mutually liked peer; Both peer victimization and isolation were standardized. For all the dependent variables except for internalizing problems, the variables were not standardized. For internalizing problems, the variable was standardized. For having a mutually liked peer, logistic regression analyses were conducted. As 3-way interaction was significant, the slope analyses were conducted separately by gender

Figure 1: Model for Research Question 1

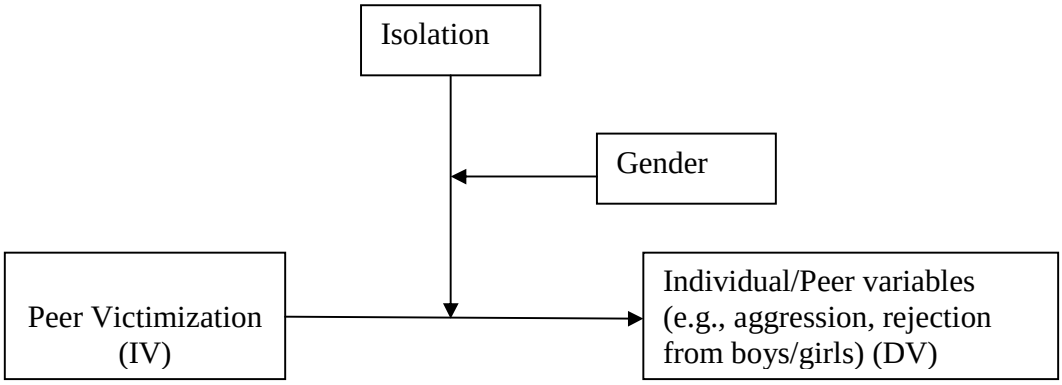

Figure 2: Model for Research Question 2

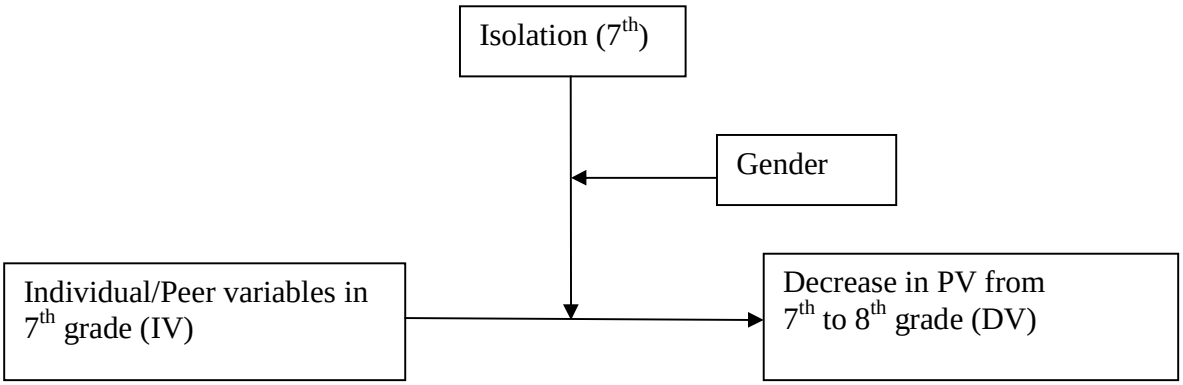

Figure 3. The relationship between PV and shyness at different levels of isolation

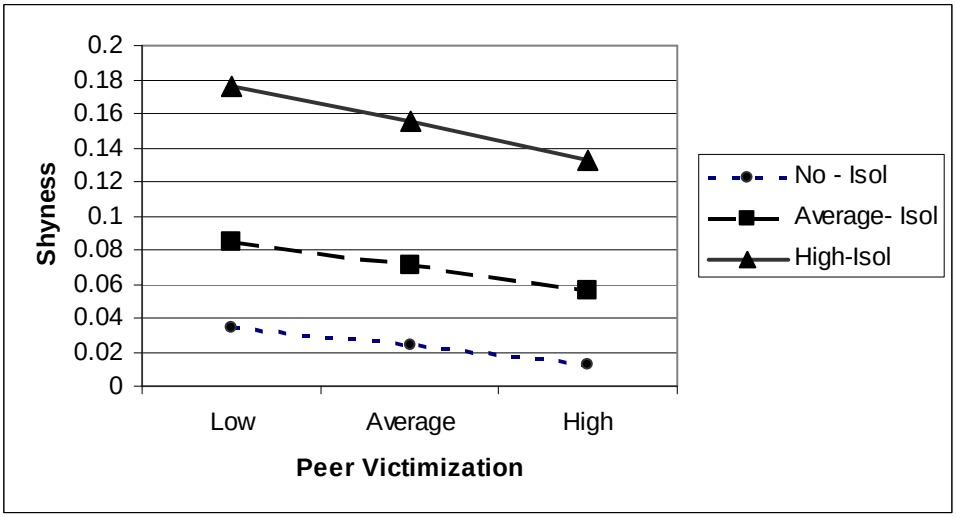

Figure 3.Scores of shyness at each of 3 levels of Peer Victimization (PV) x 3 levels of Isolation (Isol.) are estimated based on the results of the post-hoc simple slope analyses conducted after the regression analyses. Low PV means 1*SD* below average, and High PV means 1*SD* above average. No Isol is a condition of score 0 on peer-rated isolation, and High Isol is a condition of 1 *SD* above average on the score for peer rated isolation.

Figure 4. The relationship between PV and internalizing problems at different levels of isolation

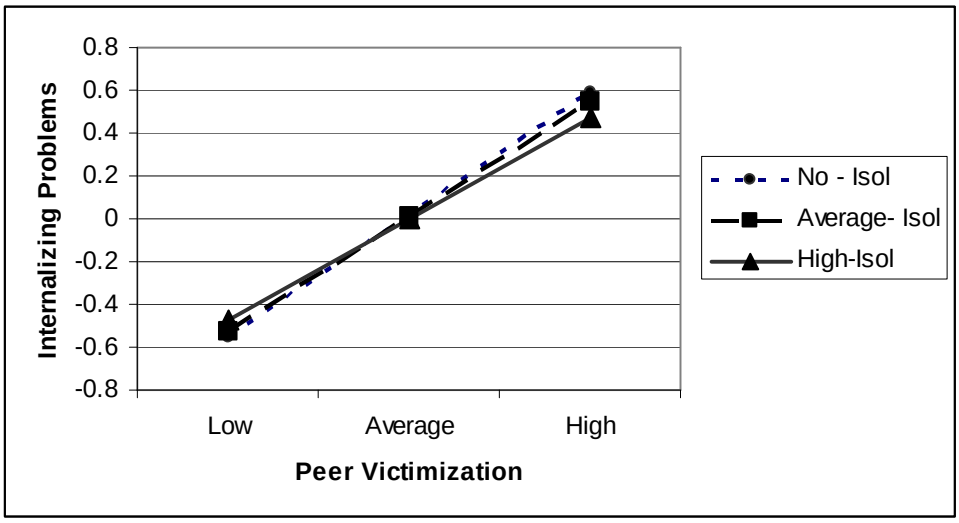

Figure 4.Scores of internalizing problems s at of each 3 levels of Peer Victimization (PV) x 3 levels of isolation (Isol.) are estimated based on the results of the post-hoc simple slope analyses conducted after the regression analyses. Low PV means 1*SD* below average, and High PV means 1*SD* above average. No Isol is a condition of score 0 on peer-rated isolation, and High Isol is a condition of 1 *SD* above average on the score for peer rated isolation.

Figure 5: The relationship between PV and rejection by boys at different levels of isolation

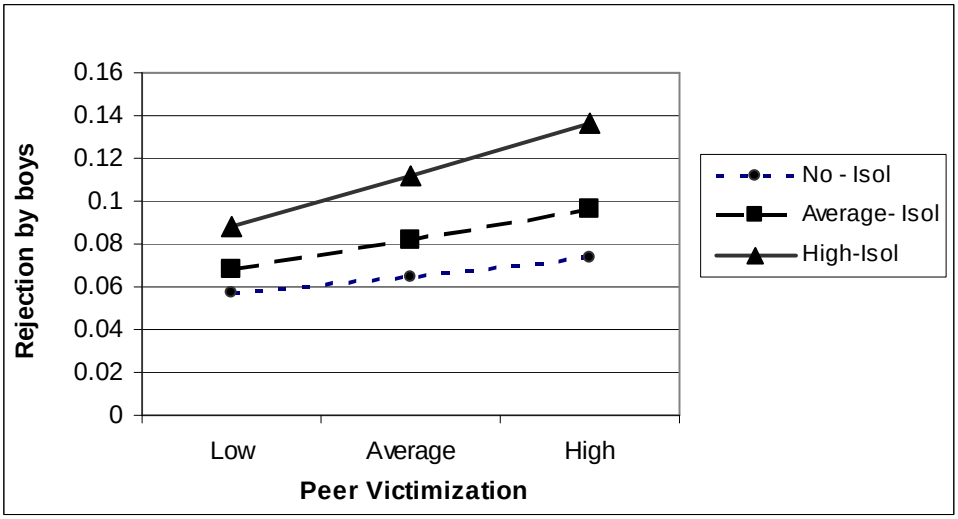

Figure 5.Scores of rejection by boys at each of 3 levels of Peer Victimization (PV) x 3 levels of Isolation (Isol) are estimated based on the results of the post-hoc simple slope analyses conducted after the regression analyses. Low PV means 1*SD* below average, and High PV means 1*SD* above average. No Isol is a condition of score 0 on peer-rated isolation, and High Isol is a condition of 1 *SD* above average on the score for peer rated isolation.

Figure 6. The relationship between PV and rejection by girls at different levels of isolation

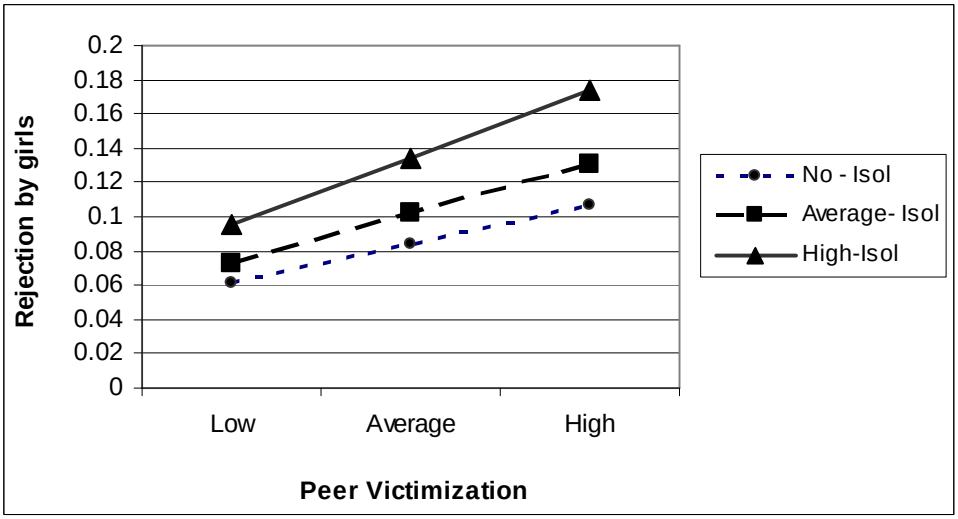

Figure 6.Scores of rejection by girls at each 3 levels Peer Victimization (PV) x 3 levels of Isolation (Isol.) are estimated based on the results of the post-hoc simple slope analyses conducted after the regression analyses. Low PV means 1*SD* below average, and High PV means 1*SD* above average. No Isol is a condition of score 0 on peer-rated isolation, and High Isol is a condition of 1 *SD* above average on the score for peer rated isolation.

Figure 7. The relationship between PV and the probability of having a mutually liked peer for boys

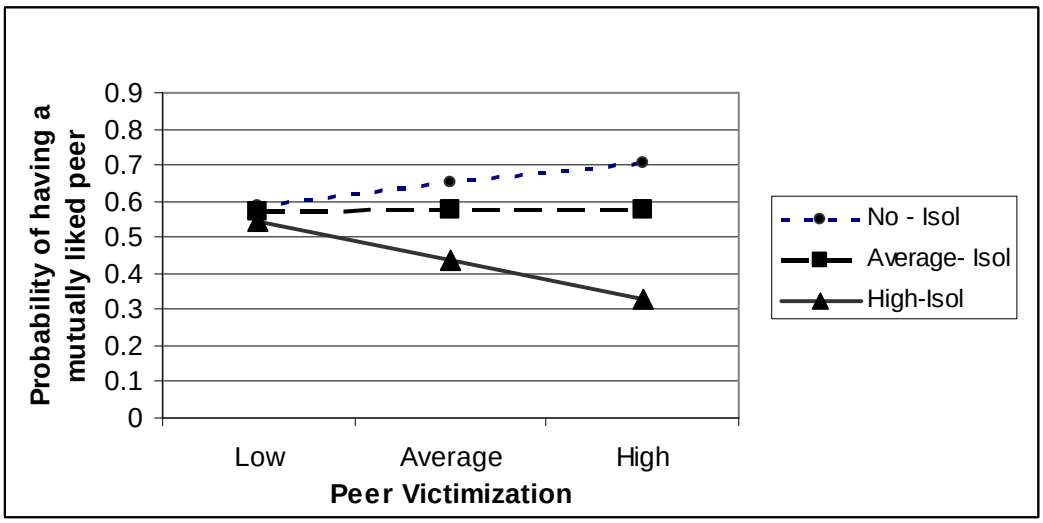

Figure 7. Probability of having a mutually-liked peer at 3 levels Peer Victimization (PV) x3 levels of Isolation (Isol.) are estimated. Low PV means 1*SD* below average, and High PV means 1*SD* above average. No Isol is a condition of score 0 on peer-rated isolation, and High Isol is a condition of 1 *SD* above average on the score for peer rated isolation.

Figure 8. The relationship between PV and the probability of having a mutually liked peer for girls

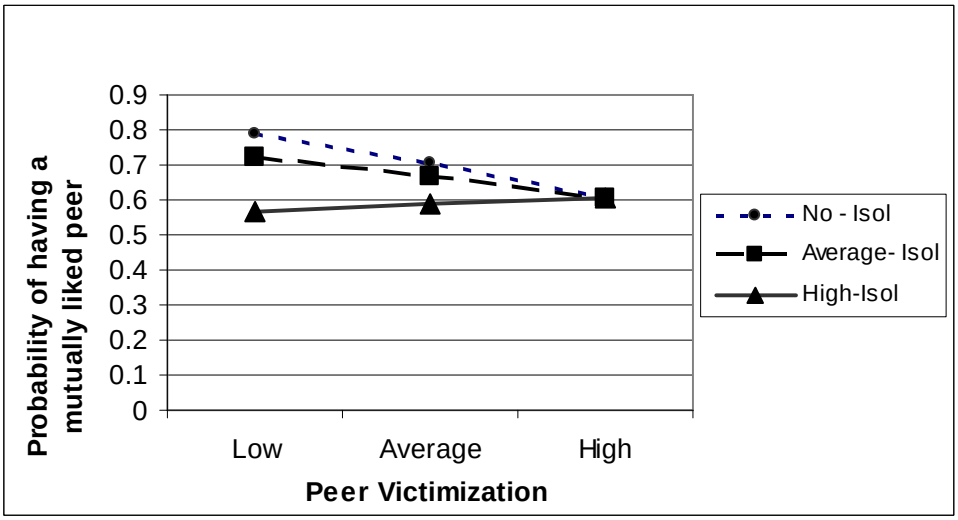

Figure 8. Probability of having a mutually-liked peer at 3 levels of Peer Victimization (PV) x 3 levels of Isolation (Isol.) are estimated. Low PV means 1*SD* below average, and High PV means 1*SD* above average. No Isol is a condition of score 0 on peer-rated isolation, and High Isol is a condition of 1 *SD* above average on the score for peer rated isolation.

Figure 9. Estimated change in Peer Victimization from 7th to 8th grade at different levels of isolation and internalizing problems

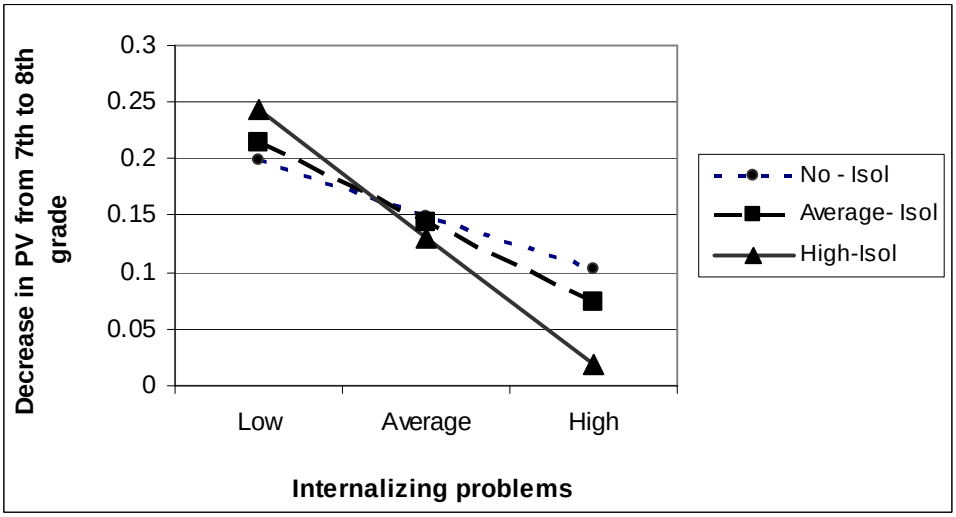

Figure 9. This figure shows estimated decrease in peer victimization from 7th to 8th grade at each of 3 levels of Internalizing problems x 3 levels of Isolation (Isol.). Low internalizing problems means 1*SD* below average, and High internalizing problems means 1*SD* above average. No Isol is a condition of score 0 on peer-rated isolation, and High Isol is a condition of 1 *SD* above average on the score for peer rated isolation.

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Appendix: Tables

Table A1: Number of students making nominations for each item on the Revised Class Play in the 7th grade

Item No.	Item Contents	Number of nomination			
		At least 1	At least 2	3	0 or over 4
1	Good leader	610	467	347	38
2	Exclude people	486	264	163	162
3	Spread Rumor	474	218	119	174
4	Play alone	450	166	82	198
5	Lose temper easily	565	292	161	83
6	You can trust	600	400	260	48
7	Get hurt easily	497	190	90	151
8	Tease others	533	329	197	115
9	Very shy	561	271	118	87
10	Too bossy	560	284	160	88
11	Often left out	533	239	105	115
12	Help people	562	390	260	86
13	Usually sad	391	107	45	257
14	Lots of fights	471	213	93	177
15	Flirtatious	476	269	155	172

Note: The number of the students who nominated a certain number of classmates is listed for each items in the Revised Class Play. For example, "At least 1 (2)" means that the participant nominated least 1 (2) classmates.

Table A2-1: Descriptive statistics of the raw scores of the variables that compose internalizing problem

	n	*M*	*SD*	Min.	Max.	Skewness	Kurtosis
Anxiety	636	1.369	0.235	1.00	2.00	0.392	-0.519
Depression	616	1.761	0.423	1.00	3.43	1.022	1.280
Low Self-esteem	622	1.826	0.763	1.00	5.00	1.415	2.631

Note: Min. = minimum; Max. = maximum. Anxiety was measured using a subscale of Behavioral Assessment Scale for Children (Reynolds, Kamphaus, 1992), Depression was measured using Reynolds adolescent depression scale (Reynolds, 1987). Self-esteem was measured by the scale developed by Rosenberg (Rosenberg, 1965)

Table A2-2: The results of principal component analyses using three variables that comprise the internalizing problems variable (Eigen values and % of variance)

Factors	Initial Eigenvalues	% of variance
1	1.832	61.07
2	0.816	27.21
3	0.352	11.72

Note: This is part of the results of principal component analyses using Anxiety, Depression, and Low self-esteem (see the Note for Table A2-1 for detailed description of each variable)

Table A3-1: Descriptive statistics for the three measures that comprise the social skills variable

	n	*M*	*SD*	Min.	Max.	Skewness	Kurtosis
Anger Control	616	3.174	0.877	1.00	5.00	-0.223	-0.656
Social Assertiveness	623	3.964	0.696	1.00	5.00	-0.687	0.470
Self Control	592	3.510	0.689	1.00	5.00	-0.095	0.145

Note: Min. = minimum; Max. = maximum. Anger control was measured using an 8-item modified version of the Anger Control scale (Griffin, et al., 1999). Social assertiveness was measured using a modified version of the scale developed by Gambrill & Richey (1975). Self-control was measured by the scale developed by Scheier & Botvin (1995).

Table A3-2: The results of principal component analyses using three variables that comprise the social (Eigen values and % of variance)

Factors	Initial Eigenvalues	% of variance
1	1.659	55.31
2	.805	26.84
3	.536	17.85

Note: This is part of the results of principal component analyses using Anger control, Social assertiveness, and Self-control (see the Note for Table A3-1 for detailed description of each variable)